Section 6: Land Use Planning Context & Processes

6.1 Introduction

Cities and counties "plan" in order to identify important community issues, project future demand for services, anticipate potential problems, and to establish goals and policies for directing and managing growth. Individual jurisdictions use a variety of tools in the planning process including the general plan and a number of different federal, state, and local ordinances (e.g. zoning, subdivision, grading etc.) and policies.

State law requires that each jurisdiction adopt "a comprehensive, long-term general plan for [its] physical development." This general plan is the official city or county policy regarding the development of housing, business, industry, roads, parks, and other land uses. The general plan also provides guidelines for the protection of the public from noise and other environmental hazards, as well as the conservation of natural resources. The legislative body of each city (the city council) and each county (board of supervisors) adopts zoning, subdivision and other ordinances to regulate land uses and to carry out the policies of its general plan. The general plan can be described as the city or county's blueprint for future development. It represents the community's view of its future; a constitution made up of goals and policies upon which the city council, board of supervisors and planning commission will base their land use decisions.

As mentioned in the Introduction, Objective #2 of the *San Diego Bay Watershed URMP* is to incorporate watershed principles into land use planning. The objective closely follows the requirement under Section J.2.f of the Municipal Permit, which requires a mechanism to facilitate collaborative "watershed-based" land use planning with neighboring local governments in the watershed. The sections below will explain how the San Diego Bay Watershed Copermittees are working together to accomplish this objective and Municipal Permit requirement.

The following is a brief discussion of each of the San Diego Bay Watershed Copermittees' planning goals and policies as outlined in their *General Plans*, as they relate to watershed planning activities, including collaboration with other Copermittees, and how the individual jurisdiction handles matters that directly, or indirectly, affect the other jurisdictions within the San Diego Bay watershed.

6.1.1 City of Chula Vista

The *1995 City of Chula Vista General Plan* incorporated water quality and watershed protection principles and policies into three major areas of the *General Plan*; the Land Use Element, Public Facilities Element, and the Conservation and Open Space Element. These existing principles and policies substantially address topical areas suggested under the Municipal Permit. Examples of existing water quality and watershed principles and policies are summarized by the following five general categories: (1) Maximize, where feasible, on-site infiltration of runoff and implement on-site treatment controls; (2) Avoid, to the extent practicable, development of areas susceptible to erosion and sediment loss; and/or establish development guidance; (3) Limit disturbances of natural water bodies and natural drainage systems to the extent practicable; (4) Protect environmental and public health by reducing or eliminating the use of hazardous and toxic materials by residences, businesses, and public agencies; and (5) Conservation, landscaping, and restoration of natural resources.

The City is currently in the process of conducting a comprehensive update to the *General Plan.* The Update affords an opportunity to look further at water quality and watershed protection matters within the City's planning area. To the extent that possible enhancements to existing water quality and watershed protection principles and policies may be identified, the City will evaluate and consider them in conjunction with the *General Plan* Update process.

6.1.2 City of Coronado

The City of Coronado is not currently revising our *General Plan*. Coronado believes that its' *General Plan*, Local Coastal Plan and Applicable Implementation Ordinances adequately address water quality and water shed protection principles and policies. The basic objective of the plan is "to minimize the short and long term impacts on receiving water quality from new development and redevelopment." The six elements of the *General Plan* that address water quality and water shed protection principles and polices are: (1) Land Use Element; (2) Parking Element; (3) Community Design Element; (4) Open Space Element; and (5) Conservation Element.

The City of Coronado has seven chapters within Coronado's Zones Ordinance that provide regulations that directly assist in the preservation and projection of open space, natural resources, and water quality. These ordinances are the Open Space Zone; Tidelands Overlay Zone; Scenic Highway Overlay Zone; Wildlife Preserve Zone (Modifying Overlay Zone); Diking, Dredging, Filling, and Dredge Spoils Disposal; Waterfront Development; and Protection of Natural Ocean and Bay Process. The City shall continue implementation of these zoning ordinances and other regulatory measures

that safeguard the community's open spaces, natural resources and water quality such as CEQA requirements and the Subdivision Map Act.

6.1.3 City of Imperial Beach

The City of Imperial Beach is particularly sensitive to the impact of watershed pollution because of its geographic location at the down stream end of the drainage basin. The *General Plan* recognizes this unique location and critical relationship of what happens in the watershed to the well being of the City. The City is a "small beach oriented town" as described in the *General Plan* Goal 11. Thus the City actively works with the neighboring communities to preserve the coastal environment. As noted in the introduction to the *General Plan*, Design Element, "The character of Imperial Beach's environment presents both special opportunities and special perils. The opportunity lies in the richness of the City's natural, coastal setting. The peril lies in the fragile nature of Imperial Beach's environment and in the speed with which it can be destroyed." Imperial Beach has few industries and must, therefore, rely on the attraction of the tourists for economic development. The beach area is most critical to the City's economic well being.

Goal 3 of the General Plan states, "Imperial Beach is an integral part of the larger California coastal community, linked by shared resources that are prized by the state, national, and even international community. Congenial and cooperative use of these resources by both residents and visitors is recognized. Solutions for cooperative use shall always be based on retaining the area's resources."

In the *General Plan* Conservation and Open Space Element, CO-9, the City is committed to supporting actions to ensure water quality and watershed protection including but not limited to:

- To the extent feasible, preserve, and where possible, create or restore areas that provide water quality benefits, such as riparian corridors and wetlands, and promote the design of new developments so that it protects the natural integrity of drainage systems and water bodies.
- Avoid conversion of areas particularly susceptible to erosion and sediment loss and/or establish development guidance that identifies these areas and protects them from erosion and sediment loss.
- To the extent feasible, minimize the amount of impervious surface and directly connected impervious surfaces in areas of new development and redevelopment and maximize the on-site infiltration of runoff. Where this is not feasible, encourage runoff management practices that minimize the volume of urban runoff discharged to receiving waters.

- In watershed planning, pollution prevention should be the first priority, to be followed by source control (only when pollution prevention is not technologically feasible), and pollution control.
- Reduce pollutants associated with vehicles and increasing traffic resulting from development. Coordinate local traffic management reduction efforts with the *San Diego County Congestion Management Plan*.
- Implement the San Diego Association of Government's (SANDAG's) recommendations as found in the Water Quality Element of its Regional Growth Management Strategy.
- Post-development runoff from a site shall not contain pollutant loads which cause or contribute to an exceedance of receiving water quality objectives or which have not been reduced to the maximum extent practicable.

In the General Plan Design Element – D-8, it is stated that:

- Developments shall be designed to protect water quality and provide for watershed protection.
- New development and redevelopment shall minimize the amount of impervious surfaces and directly connected impervious surfaces in areas of new development and redevelopment and where feasible slow runoff and maximize on-site infiltration of runoff.
- New development and redevelopment shall implement pollution prevention methods supplemented by pollutant source controls and treatment through the use of small collection strategies located at, or as close as possible to, the source to minimize the transport of urban runoff and pollutants offsite and into the stormwater sewer system.
- Prior to making land use decisions, utilize methods available to estimate increases in pollutant loads and flows resulting from projected future development. New development and redevelopment shall incorporate structural and non-structural Best Management Practices (BMPs) to mitigate the projected increase in pollutant loads and flows.

6.1.4 City of La Mesa

The City of La Mesa amended its *General Plan*, on March 12, 1996, to include the storm water issues and programs as was required by the NPDES (1992) permit for storm water discharges. The *General Plan* was again amended on October 22, 2002, to incorporate more storm water issues and programs in compliance with the NPDES permit (2002).

Although the NPDES (1992) programs were generally addressed in the Public Services and Facilities Elements of the General Plan, more extensive storm water quality requirements (per 2002 Municipal Permit) were added to this section of the *General Plan*.

The Department of Public Works/Engineering is responsible for the implementation of storm water pollution control and prevention programs.

The Public Works Department will implement the following measures to assist in regional efforts to improve water quality.

- Implement pollution prevention methods supplemented by pollutant source controls and treatment. Use small collection strategies located at, or as close to as possible, the source (i.e. the point where water initially meets the ground) to minimize the transport of urban runoff and pollutants offsite and into the storm drain system.
- Preserve, and where possible, create or restore areas that provide important water quality benefits, such as riparian corridors, wetlands, and buffer zones. Encourage land acquisition of such areas.
- Limit disturbances of natural water bodies and natural drainage systems caused by development including roads, highways, and bridges.
- Utilize methods available to estimate increases in pollutant loads and flows resulting from projected future development. Require incorporation of structural and non-structural Best Management Practices to mitigate the projected increases in pollutant loads and flows.
- Avoid development of areas that are particularly susceptible to erosion and sediment loss; or establish development guidance that identifies these areas and reasonably protects them from erosion and sediment loss.
- Implement programs and practices to assist in reducing pollutants associated with vehicles and traffic.
- Implement the San Diego Association of Government's (SANDAG's) recommendations as found in the Water Quality Element of its Regional Growth Management Strategy.
- Implement programs to monitor post-development run-off to aid in preventing pollutant loads which cause or contribute to an exceedence of receiving water quality objectives or which have not been reduced to the maximum extent practicable.

6.1.5 City of Lemon Grove

The City of Lemon Grove's *General Plan* and related documents were adopted on October 22, 1996 and include several interrelated elements that establish guidelines to achieve the City's vision. The three additional documents that directly relate to the *General Plan* are the *City Resources Report*, the *Implementation Manual* and the *Master EIR*. All of the objectives and policies in the *General Plan* elements correlate directly with one or more implementation measures in the Implementation Manual. The mitigation measures in the Master EIR correspond to individual programs contained in the *General Plan Implementation Manual.*

While the Conservation and Recreation element of the *General Plan* outlines specific objectives and policies for clean water, the Community Development, Mobility, Public Facilities, and Safety Elements also include policies that support clean water goals and objectives. These elements address water quality issues through stated objectives and implementation programs that support one or more of the following: the identification of infrastructure deficiencies, program development for adequate maintenance of private and public parking and streets, proper disposal of waste and hazardous materials, appropriate drainage and erosion control methods, volunteer clean-up organizations, and interjurisdictional collaboration.

The City participates in regional planning forums addressing environmental, development, and economic issues that affect Lemon Grove. The *General Plan* encourages greater participation to facilitate more effective local implementation of regional programs and this participation will be paramount in achieving cross-jurisdictional participation addressing watershed issues. Current planning activities, which are proposed at or near jurisdiction boundaries, are currently being distributed to appropriate agencies for review and comment.

The Conservation and Recreation Element of the City of Lemon Grove's *General Plan* specifically states "Lemon Grove is a part of a larger watershed that contributes water to Los Chollas Creek, which ultimately flows to the Pacific Ocean. While no use in the City directly discharges polluted water in surface streams, runoff during rain events contains pollutants that contribute to degradation of the Las Chollas Creek water quality."

The City of Lemon Grove's General Plan specifically states:

> Objective 6.0: Lower levels of pollutants in runoff.
>
> Policy 6.1: Educate residents, business owners, and City departments about methods to reduce pollutants in runoff.
>
> Policy 6.2: Comply with current federal and state water quality programs.

Although no factories or industries in Lemon Grove directly discharge polluted water into the environment, the community still contributes to regional water pollution problems. Pesticides, oil, grease, fertilizers, detergents, and earth materials from urban areas are "washed away" in runoff. Polluted runoff flows to surface streams and water bodies, or percolates to the groundwater table. To reduce the level of pollutants in local runoff, the City intends to pursue implementation of all applicable requirements of the National Pollutant Discharge Elimination (NPDES) regulations, including the General Construction Activity Storm Water Permit and the Area wide Municipal Storm Water Permit.

6.1.6 City of National City

The City of National City's *General Plan* was approved by the City Council on September 10, 1996 and cites as a sub-goal of the *General Plan*.

The City will maintain and coordinate planning with the appropriate public agencies for evaluation and improvement of the various public facility service systems (water, sewerage, drainage, street lighting, streets and highways, and other utilities), to adequately serve existing and projected future development and maintain a high quality urban environment.

Additionally, the General Plan states that the City will cooperate with Sweetwater Authority (water purveyor for National City) and the Port District on projects that are common to National City and these agencies. During the next update of the *General Plan* greater emphasis will be placed on water quality and inter-jurisdictional cooperation with quasi-governmental agencies (the Port District, Sweetwater Authority, and US Navy) and the adjacent cities of San Diego, and Chula Vista regarding the San Diego Bay watershed.

6.1.7 City of San Diego

The City of San Diego's Progress Guide and General Plan, which was adopted on February 26, 1979, contains 13 elements, addressing the following issues: housing, transportation, commercial, industrial, public facilities, services, and safety, open space, recreation, redevelopment, conservation, energy conservation, cultural resources management, seismic safety, and urban design. The basic goal of the plan is the "fostering of a physical environment in San Diego that will be most congenial to healthy human development." In relation to water quality, a stated sub-goal of the general plan is the "conservation of an urban environment that is in harmony with nature and retains strong linkages with it." The City's Progress Guide and General Plan is in the process of being amended to include increased emphasis on water quality, as discussed below.

The City of San Diego has recently adopted the Strategic Framework Element, which constitutes the first step in comprehensively updating the City's General Plan since 1979. Several factors that influenced the timing of this update include:

- The City's population is anticipated to continue to increase in the near future;
- Less than 10 percent of the City's land is vacant and available for new development, meaning the City must shift from developing vacant land to reinvesting in existing communities;
- The City faces a significant shortfall in public facilities and services;
- The City needs to address traffic congestion and other quality of life concerns; and,
- Housing is increasingly unaffordable and unavailable.

The Strategic Framework Element provides the overall structure to guide the General Plan update, including future community plan amendments and implementation of a Five-Year Action Plan. The Strategic Framework Element contains a strategy called the City of Villages to direct future growth as San Diego shifts from an era of building upon abundant open land to one of reinvesting in existing communities. It represents the City's new approach for shaping how the City will grow while preserving the character of its communities and its most treasured natural resources and amenities. The development of the Strategic Framework Element represents a partnership between City staff, other agencies, the Strategic Framework Citizen Committee, and many interested citizen groups and City residents.

The Five-Year Action Plan is a companion document to the Strategic Framework Element. It outlines the work program proposed to implement the City of Villages strategy with its major policy recommendations regarding urban form, neighborhood quality, public facilities and infrastructure, conservation and the environment, economic prosperity and affordable housing. The Action Plan is the guide to how, when, and who is responsible for implementing the goals. The Action Plan identifies actions to be taken, the "Lead Department(s)" to further the action, whether staff funding is available to work on the action, potential public and private sector partners who should be involved, and a monitoring program to assess progress in implementing the strategy. An important activity in the Five-Year Action Plan is the adoption of a new conservation element to the Progress Guide and General Plan with significant policies devoted to water resources and habitat protection. A key goal of this effort is to "take an active leadership role in promoting rural and open space preservation throughout the region."

The City of Villages strategy is designed to complement and support long-range growth management strategies throughout the region. The City coordinates and works closely with regional planning entities including the County, San Diego Association of Governments (SANDAG) and the Metropolitan Transit Development Board (MTDB). Two examples of the benefits of the regional coordination associated with the City of Villages

are: 1) the real potential to limit sprawl in outlying areas of the county, and 2) a significantly superior transit system that can provide more choices for San Diegans to move about the City.

While the development of the Strategic Framework Element has been closely coordinated with many other local agencies, the City of San Diego continues to play a leading role in regional planning. This role includes working with other cities and agencies in refining the regional arterial transportation network, expanding transit services, developing a long-term airport solution for the region, assuring availability of adequate sources of water and utilities for urban needs, and achieving goals for a regional open space network. The City of San Diego is currently participating in the preparation of a Regional Comprehensive Plan (RCP), a countywide effort to identify and support smart growth development patterns, with all of the SANDAG member agencies.

6.1.8 County of San Diego

The Regional Land Use Element of the County of San Diego's existing *General Plan* sets as its overall goal the requirement that planning in the County will "accommodate population growth and influence its distribution" in such a way as to "protect and use scarce resources wisely" and to "preserve the natural environment." The County's Regional Land Use Element also states that one of its Government Structure Goals (Goal 5.4) is to "coordinate planning efforts within the cities of the region to develop compatible land use strategies."

Portions of the San Diego Bay watershed lie within several community and sub-regional planning areas, including:

Spring Valley	Descanso	Crest/Dehesa
Sweetwater	Alpine	Jamul/Dulzura
Valle de Oro	Otay	Cuyamaca

After reviewing these documents, it was found that while the existing plans had references to jurisdictional collaboration, water quality, watershed protection, and stormwater pollution principles, they were scattered throughout the documents. It was also found that this language was not standardized, and was included in some community plans, but not others. As such, efforts are currently underway to modify the *General Plan* (GP2020) to improve upon this jurisdictional collaboration to make the language more standardized and consistent.

As part of the GP2020 update, the County of San Diego is developing land use goals and policies that are intended to maintain a built environment that is compatible with and

sensitive to its natural setting and retains communities and country towns of unique local character. Appropriately identified land uses should enhance, serve, and contribute to an existing communities character as well as protect natural resources while maintaining the public safety and public and private property rights of landowners.

New developments shall be consistent with a community's character and meet the needs for a diverse range of ages, incomes, abilities, and lifestyles. New development shall also provide for the protection of the County's natural resources including ground-water resources, dark skies, cultural and historical resources, agriculture, natural floodplains, wetlands, environmentally sensitive lands, air quality, and water quality through the creation of greenbelts and wildlife corridors, and other open space areas. The County of San Diego's *General Plan* includes goals and polices that provide mechanisms intended to preserve open spaces for conservation of natural resources and recreational and educational activities.

6.1.9 Port of San Diego

The 1962 San Diego Unified Port District Act provided for the creation of the Port District and contained the provision, in Section 19, that "the board (Board of Port Commissioners) draft a master plan for harbor and port improvement and for the use of all tidelands and submerged lands" which are conveyed to the Port. The Board of Port Commissioners in January of 1964 first adopted the *Port Master Plan*. An extensive revision culminated in 1972, with additional updates in 1975 and 1976. The California Coastal Act of 1976 necessitated that the *Port Master Plan* be brought into conformance with the Act.

The *Port Master Plan* provides the official planning policies for the physical development of the tidelands conveyed and granted in trust to the Port. The policies are expressed in written form and graphically on official maps. The usefulness of the Plan relates directly to its status as an official statement of the public policy adopted by the Board of Port Commissioners. Among other things, it serves as a guide for policy decisions, as the basis for protecting existing development and for capital improvement programming, and as a source of information.

The *Port Master Plan* is unlike the typical city or county master plan, which has two broad categories of policies for guiding and coordinating development; one category dealing with publicly owned land and another category for privately owned land. The *Port Master Plan* deals primarily with land that the State Legislature has conveyed to the Port to act as trustee for administration, and upon which the Port has regulatory duties and proprietary responsibilities. The Port's planning jurisdiction consists of the approximately 5,480 acres of tidelands.

Section II of the *Port Master Plan* contains 14 Planning Goals. Those goals relevant to water quality and watershed protection and inter-agency coordination/collaboration policies and principles are as follows:

- Goal X -- The Quality of Water in San Diego Bay Will Be Maintained at Such a Level as Will Permit Human Water Contact Activities.

  This includes cooperating with the Regional Water Quality Control Board, the County Health Department, and other public agencies in a continual program of monitoring water quality and identifying source of any pollutant.
- Goal XIII -- The Port District Will Maintain Its Master Plan Current, Relevant, and Workable, in Tune with Circumstances, Technology, and Interest of the People of California.
- Goal XI -- The Port District Will Protect, Preserve, and Enhance Natural Resources, Including Natural Plant and Animal Life in the Bay as a Desirable Amenity, an Ecological Necessity, and a Valuable and Usable Resource.

  This includes promoting the advancement of public knowledge of natural resources through environmental educational materials and keeping appraised of the growing body of knowledge on ecological balance and interrelationships.

As outlined above, many of the goals and strategies currently contained in the *Port Master Plan* are directed at maintaining and enhancing the water quality of San Diego Bay. The existing goals incorporate most of the water quality and watershed protection principles presented in the Municipal Stormwater Permit. Nonetheless, in light of the examples of water quality and watershed protection principles and policies listed in Section F.1.a of the Municipal Stormwater Permit, the Port will consider modifying the *Master Plan* to more specifically discuss watershed management and inter-agency coordination/collaboration.

6.2 Previous & Current Inter-Jurisdictional Planning Collaborative Mechanism

Below is a summary of the previous and current inter-jurisdictional planning collaborative mechanisms that have been applied in the San Diego Bay watershed.

6.2.1 Discretionary Application Review

State law requires that local governments hold public hearings prior to most planning actions. At the hearing, the council, board, or advisory commission will explain the proposal (whether a development proposal, ordinance amendment, or general plan

update), consider it in light of local regulations and environmental effects, and listen to testimony from interested parties.

Jurisdictions (as well as the public at large) have the opportunity to comment on and to participate in hearings relating to land use actions including development. Most development projects within the State of California are considered to require a discretionary review by the jurisdiction with the lead permit approval authority for the project. Therefore, pursuant to the California Environmental Quality Act (CEQA), before a project can be approved by a jurisdiction, most projects must undergo some form of environmental review, a process, which includes a public notification and comment opportunities. Also several types (not all) of these projects require that the jurisdiction hold a notified public hearing prior to approval of a project.

As part of many of the individual jurisdiction's *Standard Urban Stormwater Management Plan (SUSMP)*, discretionary projects are required to prepare a *Stormwater Management Plan (SWMP)* or similar document for review and approval. The purpose of the *SWMP* is to provide all the information needed to fully and adequately characterize the existing water quality, analyze the drainage, develop effective post-construction stormwater protection, and ensure the effectiveness of the Best Management Practices (BMP) through proper maintenance and long-term fiscal responsibility. Prior to being approved by a hearing body, the environmental documents including the *SUSMP, SWMP*, and the BMP's prepared for a project will be available for a pre-determined public review period ranging from 21 – 45 days.

6.2.2 Comprehensive Management Plan for San Diego Bay

In 1987, California State Assemblywoman Lucy Killea established the San Diego Bay Interagency Water Quality Panel to ensure the long-term viability of San Diego Bay. This legislation was designed to encourage governmental agencies having jurisdiction over various activities in San Diego Bay to coordinate their efforts and to provide technical information and advice to the San Diego Regional Water Quality Control Board and others. This group, referred to as the Bay Panel, created the *Comprehensive Management Plan (CMP) for San Diego Bay* in January 1998. The CMP is a series of collective expectations of how San Diego Bay should be managed. The document focused on Research and Monitoring Coordination, Data Management, Public Health, Fish and Wildlife, Economic Viability, Recreation, Communication/Education, and National Security.

6.2.3 San Diego Bay Watershed Task Force

The San Diego Bay Watershed Task Force (Task Force) was initiated through a directive from the Commissioner of the Port of San Diego in May 1998 to address the issue of stormwater and urban runoff discharges into the Bay. The initial meeting was comprised of the mayors and city managers of jurisdictions in the San Diego Bay watershed, as well as representatives from the RWQCB, the US Navy, US Coast Guard, University of California-Sea Grant, and Sweetwater Authority. These leaders endorsed the effort by authorizing staff membership in the Task Force, which met through the summer of 2000, and culminated in the development of a *Preliminary Watershed Management Strategies Plan*. The Task Force included representatives from the cities of Chula Vista, Coronado, Imperial Beach, La Mesa, Lemon Grove, Imperial Beach, and National City; as well as representatives from the County of San Diego. Additional members included stakeholders from regulatory agencies, municipalities, State and Federal agencies, special districts, resource protection organizations, businesses, environmental organizations, scientists, consultants, and the public.

The *Preliminary Watershed Management Strategies Plan* addressed urban runoff issues associated with the sub-watersheds impacting San Diego Bay, which include the Pueblo San Diego, Sweetwater, and Otay sub-watersheds (or Hydtrographic Units). Each sub-watershed discussion includes an assessment of sub-watershed priorities and action plans to address the priorities. The *Strategies Plan* was designed to serve as a guidance/resource document to address specific planning and implementation goals for agencies whose jurisdictions fall within these sub-watersheds.

The *Strategies Plan* was the result of the on-going effort of federal, state, and local agencies working in the region to provide tools and actions for a united plan to improve and protect the water quality of San Diego Bay. This group was a voluntary effort to achieve a common goal to protect the Bay and was not required by regulation. The goals of the *Strategies Plan* were to:

- Protect the water quality of San Diego Bay and its watershed
- Maintain a sustainable river ecosystem for the watershed
- Improve water quality in the watershed

The objectives of the *Strategies Plan* were to:

- Promote and improve urban runoff management by implementing Best Management Practices (BMPs) to meet water quality standards
- Promote stream stabilization using natural processes
- Promote contiguous habitat

- Increase biological diversity
- Increase migratory and resident fish habitat
- Coordinate natural resource protection and planning efforts
- Encourage land stewardship
- Reduce soil erosion
- Promote sustainable land use concepts
- Promote and improve drinking water management
- Encourage establishment of non-invasive species

Although the *Strategies Plan* was never officially adopted by the Port of San Diego Board of Port Commissioners, existing draft forms were used in Sections 1 and 2 of this Watershed URMP document.

6.2.4 Sweetwater River Watershed Management Program

As the owner/operator of two drinking water reservoirs in the Sweetwater River Watershed, Sweetwater Authority is interested in watershed management as a means of enhancing water quality and supply sources while meeting the needs of the basin as a whole. San Diego Bay is included in the SWRCB "List of Impaired Water Bodies (303d List) and so was targeted to receive watershed management grants for watershed planning. Sweetwater Authority, the primary stakeholder in the largest of the three hydrologic units draining into the bay, received a grant from the State Water Resources Control Board (SWRCB) under the authority of Federal Clean Water Section 205 (j) Water Quality Assessment. The purpose of the grant was to facilitate water quality management through watershed planning and implementation of projects to reduce, eliminate, or prevent water pollution on a watershed scale, in partnership with local stakeholders.

The first phase of the *Comprehensive Watershed Management Program* initiated in July 1997 was the stakeholder involvement. This included identifying and notifying all stakeholders of the proposed planning effort and inviting their participation through a series of presentations and workshops throughout the watershed. In addition, regular meetings of the Technical Advisory Committee were held. Both efforts were carried out by Sweetwater Authority and its consulting team. The product of these meetings was the *Sweetwater River Watershed Management Program Phase I Stakeholder Involvement Report*.

Phase II was to include the identification of workable water quality objectives and the formulation of a means to attain these objectives, culminating in the development of *Sweetwater River Watershed Management Program Phase II, Comprehensive Watershed*

Management Plan. Phase II has been on hold while Sweetwater Authority continues to participate in other watershed management related efforts such as the Port of San Diego initiated San Diego Bay Watershed Taskforce, the City of San Diego Water Department Source Water Protection Guidelines Project, County of San Diego General Plan 2020 update, and Joint Water Agency Natural Communities Conservation Plan (NCCP). Implications of these efforts, as well as recent RWQCB Orders relevant to watershed planning, will be evaluated with respect to the necessity of a specific Sweetwater River Watershed Plan. If a specific Sweetwater River Watershed plan is still determined to be necessary and funding earmarked, Sweetwater Authority will proceed with Phase II.

6.3 Proposed plan for planning collaboration

The jurisdictions that make up the San Diego Bay watershed will utilize a combination of practices to facilitate the integration of watershed data and information into their land use decision-making processes. This process is intended to ensure the protection of the water quality within the watershed and receiving water bodies. The mechanisms used to facilitate cross-jurisdictional land use planning to ensure consideration of the health of the watershed are described below:

- Water Quality Assessment
- Information / Materials Sharing
- Jurisdictional Planning
- Other Mechanisms

Each jurisdiction will determine the most appropriate degree that each of these methods will be employed.

6.3.1 Water Quality Assessment

As illustrated in Figure 6-1, the annual watershed-based water quality assessment conducted collaboratively by the stormwater programs in each jurisdiction will form the informational basis for all watershed activities and programs later initiated by jurisdictions, including land use planning. Jurisdictional stormwater programs will consider the role of land use planning during the development of their overall control strategies for specific issues and problems identified as priorities for the watershed. On an annual basis, as appropriate, specific data, information, and/or recommendations will be developed or compiled during the water quality assessment process and distributed to each jurisdiction's respective planning departments for consideration by land use planners and

other decision makers to ensure adequate consideration of watershed-level problems and solutions.

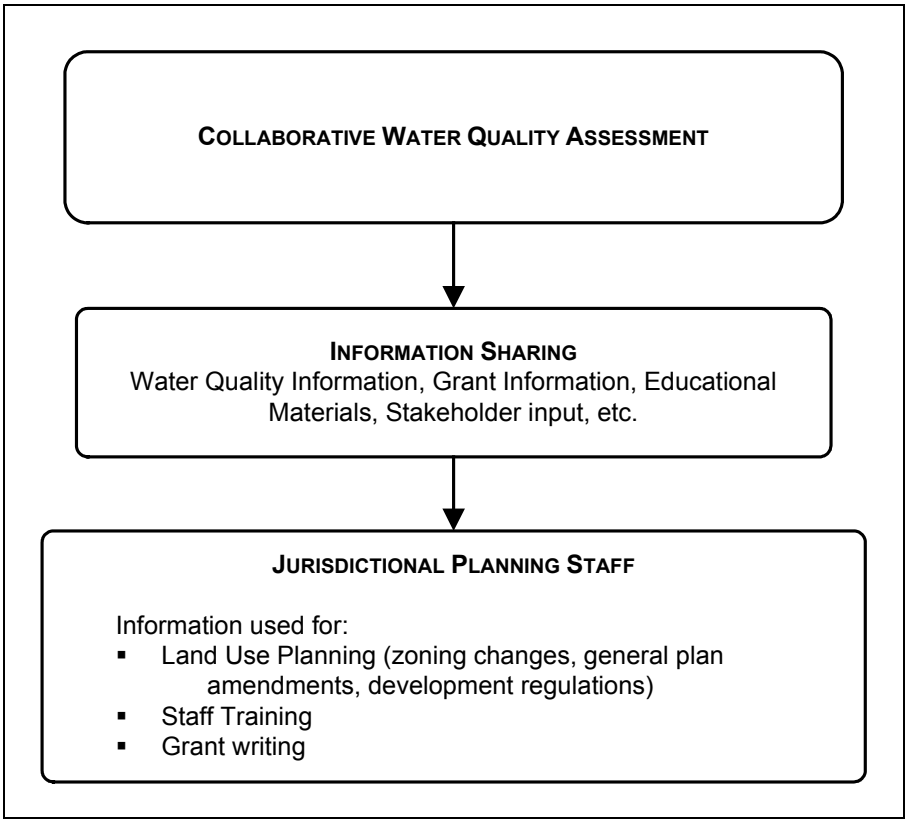
6.3.2 Cross-Jurisdictional Information / Materials Sharing

For watershed issues to be successfully integrated into the land use planning process, effective dialogue must be established between the jurisdiction's stormwater programs, planning staff, and other stakeholders. To this end, stormwater managers (e.g., the Copermittee staff with primary responsibility for completion and implementation of the Watershed URMP) will establish forums as they determine necessary to ensure effective communication with planning staff both jurisdictionally and on a watershed basis. In both instances, the purpose of the meetings will be to facilitate the exchange of pertinent watershed-specific information and to explore the collaborative development of planning strategies between stormwater managers and planners. With respect to watershed-level meetings, the lead Copermittee or their designee will facilitate meetings attended by representatives from each jurisdiction in the watershed, other interested agencies, and the public. As described in Section 7, public participation will be a priority during these and other meetings. The meetings will provide a general forum for discussions regarding projects that may impact water quality within other watershed jurisdictions, as well as collaborative opportunities for grant fund applications, coordination of natural resource planning, and mitigation within watersheds. Watershed land use planning groups will periodically evaluate the effectiveness of these and other mechanisms of collaborative land-use planning to enhance their effectiveness.

Continued collaboration on the development of the San Diego Bay Watershed URMP will necessarily result in the identification and/or generation of various written and/or electronic forms of data and information (data, reports, etc.) relevant to land use planning. Utilizing electronic distribution systems (e-mail) to the extent practical, the Copermittees will ensure that such materials are shared with land use planning staff within their individual jurisdictions as well as other jurisdictions within the San Diego Bay watershed.

Examples of relevant information, materials, or work products, which may be shared periodically, include grant proposals, restoration or BMP development projects, approvals for unique (such as projects approved with *SUSMP* waivers) or large development projects, monthly meeting notices, and information on various other activities such as mitigation or structural BMP efforts, educational activities, and grant proposals. Where appropriate, Copermittees will consider the development of standardized materials such as worksheets or letters that can be distributed to other watershed jurisdictions directly or via the Lead Copermittee.

Figure 6-1. Annual Watershed-based Water Quality Assessment Conducted Collaboratively by the Stormwater Programs in Each Jurisdiction



6.3.3 Jurisdictional Planning

As additional watershed information and data is developed it will be shared with each jurisdiction's planning department. It is intended that there would be collaboration between the planning staff and the stormwater program staff within each jurisdiction to discuss potential land use planning changes, training, and grant opportunities that may be appropriate for the issues identified in the water quality assessment. For example, information gathered during the water quality assessment phase described above will form the basis of watershed-specific training elements developed either individually or collaboratively by the jurisdictions. Planning staff may also be encouraged to participate in grant writing and implementation with watershed stakeholders. In addition, relevant water quality data and findings generated through the water quality assessment may be used to determine whether new development regulations, zoning regulations, or land use policies are needed to address specific water quality issues.

6.4 Other Watershed Based Planning Efforts

For watershed issues to be successfully integrated into the land use planning process, effective dialogue must be established between the responsible parties. To this end, stormwater managers within the San Diego Bay watershed (e.g., the Copermittee staff with primary responsibility for completion and implementation of the WURMP) have begun to establish forums to ensure effective communication with planning staff, both jurisdictionally and on a watershed basis. In both instances, the purpose of the forums will be to facilitate the exchange of pertinent watershed-specific information and to explore the collaborative development of planning strategies between stormwater managers and planners. As of the date of this document, the following forums/groups have been established by the Copermittees within the San Diego Bay watershed.

6.4.1 San Diego Bay Watershed URMP Workgroup

The jurisdictions within the San Diego Bay watershed assembled the San Diego Bay Watershed URMP Workgroup. The group is tasked with developing a watershed based stormwater management plan for the San Diego Bay watershed. The participants of the workgroup include representatives from the Port of San Diego, County of San Diego, and the cities of Chula Vista, Coronado, Imperial Beach, La Mesa, Lemon Grove, National City and San Diego. Once the *San Diego Bay Watershed URMP* has been submitted to the regional board, the group will continue to meet as necessary to coordinate the implementation of the activities that are outlined in the document.

6.4.2 Otay Watershed Management Plan

The County of San Diego has taken the lead role to develop a watershed plan for the Otay River (a unit within the San Diego Bay watershed). Funding, in part, for this planning effort was obtained from the Costa-Machado Water Act of 2000 (Proposition 13). The County, with support from other jurisdictions within the watershed including, the cities of Chula Vista, Imperial Beach, and San Diego will have the responsibility for developing the plan. The objectives of the plan are to complete a framework management plan that is consistent with Section 79078.c of the Costa-Machado Act (2000), the local General Plans of the participating jurisdictions, and the Municipal Stormwater Permit. Additional objectives are to provide a method for mutual coordination between the public agencies and their stakeholders. Coordination and collaboration for the plan will be facilitated through the development of a Joint Exercise of Power Agreement (JEPA). The JEPA provides a vehicle in which the jurisdictions can work together to adopt the goals and

polices that will be proposed as part of the watershed management plan. It is estimated that the JEPA will be signed after January 2003.

It is expected that several aspects of the watershed plan including the resource inventory and the watershed analysis will be provided by surveys and modeling completed for the Otay Special Area Management Plan.

6.4.3 Otay Special Area Management Plan (SAMP)

The objective of the Special Area Management Plan (SAMP) program is to develop and implement a watershed-based plan for the preservation and protection of important aquatic resources, while accommodating appropriate development, infrastructure, recreation, and other economic activities. By planning for natural resources and development on a broad scale, the SAMP process offers local, state, and federal agencies far greater flexibility in meeting regulatory goals and achieving permitting efficiencies. The SAMP program contemplates collaboration between several regulatory agencies including the Army Corp of Engineers (Corps), the United States Environmental Protections Agency (USEPA), the State and Regional Water Quality Control Boards (RWQCB), the California Department of Fish and Game (CDFG), local governments, other public agencies, major land owners and environmental groups, in the development and implementation of strategies and approaches designed to meet the resource and economic objectives of the watershed. The SAMP process is aimed at the protection of aquatic resources including water quality. The SAMP includes several hydrological and water quality models that can be used to validate, modify, or update water quality information developed for this Watershed URMP. Although these models will be modified to reflect the conditions of the Otay Watershed they would be adaptable to other units of the San Diego Bay watershed and other watersheds within the County.

As a means to facilitate a resolution, a Cooperative Agreement (CA) is being drafted between the Army Corp of Engineers, County of San Diego, and the Cities of Chula Vista and San Diego. The intent of the CA is to identify the important groups that will be responsible for preparing the SAMP. The CA will also discuss the roles and responsibilities of the parties participating in the SAMP; of note is the creation of an Executive Committee. It is expected that this committee will include high-ranking officials from several agencies including the EPA, CDFG, USFWS, RWQCB, and equivalent ranking officials from the local jurisdictions. The purpose of this group is to meet on an "as needed" basis to resolve issues relating to policy, strategy, budget, and other issues. It is estimated that the CA will be signed after January 2003.

6.4.4 Chollas Creek Enhancement Plan

As part of the Chollas Creek Enhancement Plan, the City of San Diego Planning Department received Coastal Conservancy grant funding of $95,000 for a Chollas Creek South Branch - Phase I planning program and an additional $1.23 million for implementation of wetland restoration projects. This grant funding is within the Chollas Creek South Branch (Phase I of the Chollas Creek Enhancement Program), and would involve concrete removal and native habitat restoration.

The Coastal Conservancy grant funding awarded to the City of San Diego and accepted by the City Council (by Resolution 291612 in 1999), requires that all planning, permitting (see Attachment 2), and implementation work, including construction, be completed by February 2004.

To further implementation of the Chollas Creek Enhancement Plan, the City of San Diego Planning Department was awarded $362,000 of additional funding from the State Department of Water Resources, Division of Planning & Local Assistance, Urban Streams Restoration Program, for the implementation of additional wetland restoration efforts along a quarter-mile stretch of Chollas Creek South Branch - Phase I. The grant monies will be combined with other restoration efforts in the South Branch as identified in the Chollas Creek Enhancement Plan and Chollas Creek South Branch - Phase I Implementation Program and Wetlands Management Plan.

Additionally, in June of this year, the City of San Diego Storm Water Pollution Prevention Program (in partnership with the Port of San Diego, the City of La Mesa, the City of Lemon Grove, the Environmental Health Coalition, San Diego Baykeeper, San Diego Unified School District and Southwestern College) submitted a proposal for Proposition 13 funds under the Nonpoint Source Pollution Grant Program to implement the Chollas Creek Water Quality Protection and Habitat Enhancement Project. The proposal was approved for funding by the State Water Resources Control Board on October 17, 2002 under Resolution 2002-0152.

Specifically, the Chollas Creek Water Quality Protection and Habitat Enhancement project will provide for improvements within several segments of the Chollas Creek South Fork, including: removal of concrete sections of the channel, widening of the floodplain, and creation and restoration of wetland and transitional upland habitats. The project will also implement an education plan to foster stewardship of the creek among its neighbors to ensure the health of the creek is maintained long after the project is completed (see table 8-2 for additional details on the education program). Work is anticipated to begin in Fiscal Year 2004.

6.4.5 Multiple Species Conservation Plan (MSCP)

The Multiple Species Conservation Plan (MSCP) was approved by the City of San Diego in March of 1997 and by the County of San Diego in the following October. The County received the permit for the plan from the US Fish and Wildlife Service and California Department of Fish and Game in March of 1998. Chula Vista is the other jurisdiction within the San Diego Bay Watershed that is in the process of approving their sub-area plan.

The MSCP covers an area of approximately 580,000 acres (909 square miles) in southwest San Diego County and includes the cities of San Diego, Chula Vista, Coronado, Del Mar, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, and Santee, as well as a larger portion of the southwestern portion of the unincorporated area of the County of San Diego. The overall goal of this plan is the conservation of approximately 172,000 acres of land. This conservation is focused in the biologically most important areas within the planning boundaries.

The MSCP and other Habitat Management Plans that have been or will be approved by the local jurisdictions have watershed-wide affects. The purpose of the MSCP is to provide protection for a wide variety of species and the habitats necessary to support them while allowing economic development to proceed. The benefit of these programs is that they create a mechanism to provide conservation of large swaths of land. These conserved areas indirectly offer protection, maintain, and in some instances restore beneficial uses identified in a watershed.

Section 7: Public Participation Component

Public participation during the *San Diego Bay Watershed URMP* development and implementation process will continue to be encouraged to ensure that stakeholder interests and creative solutions are considered. This direction follows the fourth objective (Objective #4), which is to encourage and enhance stakeholder involvement within the watershed.

Broad participation is critical to the success, further development, and implementation of the watershed program. While participating jurisdictions aim to improve coordination among their own agencies, the watershed approach calls upon these agencies to engage diverse stakeholders in this process, including other regulatory agencies, environmental groups, educational institutions, landowners, and private citizens. Further, the participating jurisdictions recognize that no single agency has the capacity to address water quality issues on its own and broad partnerships are essential to positively affect the water resources in our region. It is only through a collaborative approach, that we will develop a better understanding of the issues and processes affecting water quality in our watersheds and subsequently select and address priorities.

7.1 Public Participation To Date

The current watershed program, as described in this document, has been developed based on a set of model guidelines that were produced with public input. All San Diego Copermittees held a series of meetings which were open to the public and noticed through the County of San Diego Project Clean Water website beginning in early 2002. The Copermittees have provided additional notice to numerous stakeholders via e-mail and personal communication. The County has provided leadership in outreach efforts by compiling a list of interested stakeholders that currently contains over 700 names. All other jurisdictions have also identified other stakeholders and submitted contact information to County staff for inclusion in their master distribution list. To further encourage public participation, related meeting agendas and minutes were promptly made available through the Project Clean Water website. Lastly, the model guidelines were posted online in early August 2002 along with contact information for each watershed.

To ensure further participation during program development, the draft watershed plans have been made available for public review through the Project Clean Water web site. Notice of their availability has taken place via e-mail communication (using the County's

master distribution list) as well as through other numerous means, including announcements at public meetings and personal phone calls.

7.2 Future Public Participation

San Diego Bay Watershed Copermittees will continue to pursue a strategy to actively encourage the participation and input of diverse stakeholders. Project Clean Water has been identified as the principal forum for future public participation. Other mechanisms identified to foster public participation include Copermittee collaboration and community workshops as well as integration and participation in local planning activities. The following mechanisms are being proposed/pursued:

- Stormwater Copermittee Collaboration & Community Workshops;
- Integration and participation in local planning activities;
- Project Clean Water
- Other Public Mechanisms
    - Discretionary Project Review Process
    - Direct Interaction

7.2.1 Stormwater Copermittee Collaboration & Community Workshops

San Diego Bay Watershed Workgroup will collaborate on pubic participation activities, such as regional events (e.g. an annual beach and/or creek cleanup).

7.2.2 Integration and Participation in Local Planning Activities

Watershed planning has become an issue of increasing importance over the past few years. Various local planning efforts provide forums for exploring both the development of watershed and jurisdictional activities and programs. The relationship of these efforts to the Watershed URMP development and implementation cannot be overstated since they address complementary objectives and all rely on public participation for success. Watershed management planning is multi-faceted in that it considers the correlation of many elements, including water quality and quantity, habitat and wetlands, and flood and fire management. Water quality can be used as an indicator of the health of the watershed. The *San Diego Bay Watershed URMP* is another key element to the overall watershed management planning process.

As discussed in the previous section, efforts are currently underway that will not only look into a mechanism to facilitate land use planning, but also provide a vehicle for stakeholder input. Specifically, current efforts are the Otay Watershed Management Plan, the Special Area Management Plan, and the Chollas Creek Enhancement Plan. While these projects are not always directed specifically at stormwater permit compliance, they address complementary objectives and provide opportunities for consolidation of efforts and economies of scale.

Otay Watershed Management Plan

The Watershed Protection Program, Chapter 6, of the Costa-Machado Water Act of 2000 (Proposition 13) is "to provide funds to assist in implementing watershed plans to reduce flooding, control erosion, improve water quality and improve aquatic and terrestrial species habitats, to restore natural systems of groundwater recharge, native vegetation, water flows, and riparian." Under this goal the state and regional water boards are encouraging the development of partnerships among all stakeholders of the watershed to address water quality issues. The Otay Watershed Management Plan ensures stakeholder participation throughout the planning process. This will be accomplished through the development and implementation of a Joint Executive Powers Agreement (JEPA). The JEPA will establish several committees, including a stakeholder committee to plan and develop the watershed plan. Once established, it is expected that this stakeholder group will, at minimum, meet on a quarterly basis to assist in the development of the watershed management plan for the Otay Watershed.

Otay Special Area Management Plan (SAMP)

The SAMP process is intended to facilitate collaborative planning for aquatic resources on a regional basis in a manner that provides for the comprehensive protection of these resources, while allowing for reasonable economic growth. The SAMP program contemplates collaboration between the Corps, the EPA, CDFG, local governments (Parties), as well as other public agencies, landowners, and other stakeholders with an interest in the development and implementation of strategies and approaches designed to meet these resource and economic objectives. The Parties to the SAMP recognize the value of developing plans through a participatory process that ensures ample opportunity for public input and comment. The Parties will convene a "Working Group" consisting of responsible organizations and individuals in the region who have an interest in the outcome of this specific effort. The stakeholder meetings, which will be open to the public, will meet on a regular basis.

Chollas Creek Enhancement Plan

The Enhancement Plan was born as a result of a community vision, which was identified through an extensive public participation process led by the City of San Diego Planning Department since early 1998. The Enhancement Plan was developed under the guidance of a technical advisory group which included participation from the US Army Corps of

Engineers, US Fish and Wildlife, US Navy, Regional Water Quality Control Board, California Department of Fish and Game, California Coastal Conservancy, Port of San Diego, City of Lemon Grove, City of San Diego Council Districts 4 and 8, Environmental Health Coalition, People for Trees, and UC Davis. Citizen groups which participated in the development of the plan include the Southeastern San Diego Development Committee, and the Encanto, City Heights, and Eastern Area Neighborhood Planning Groups. The Southeastern Economic Development Corporation and the Jacobs Center for Non-Profit Innovation were integral partners in the development of the Chollas Creek Enhancement Plan.

The Plan is and will continue to be implemented through an inclusive and participatory process. General tasks anticipated to develop and implement outreach and education program include: (1) Regroup original planning advisory and/or technical assistance groups which participated in the development of the Chollas Creek Enhancement Program; (2) Advise group of planned improvements and solicit input; (3) Develop participation mechanism to include a meeting schedule; (4) Develop list of pertinent community groups and other stakeholders to advise of project, solicit input in regard to planned improvements and education components, and inform about participation mechanism. As of this date, stakeholder groups identified include community planning groups within the watershed, the Southeastern San Diego Development Committee, the Natural Resources and Culture Committee, the City of San Diego's Clean Water Task Force, and the Wetlands Advisory Committee.

7.2.3 Project Clean Water

Project Clean Water, which was initiated in July 2000, established a framework for the broad-based and collaborative development of solutions to local water quality problems. The relationship of Project Clean Water policies to Municipal Permit compliance is important. An underlying tenet of this effort is that Municipal Permit compliance alone cannot achieve clean water. As such, Project Clean Water seeks to actively involve a multitude of stakeholders in exploring water quality problems, their causes, and their solutions. This significantly broadens the base of stakeholder input available to consider issues directly related to Municipal Permit compliance. As with Copermittee meetings, all Project Clean Water meetings are open to the public and participation is encouraged through a variety of avenues including a website, electronic notifications, and personal phone calls.

Project Clean Water is generally organized according to two types of working bodies, Technical Advisory Committees (TACs) and Technical Workgroups. TACs are responsible for the overall coordination and exploration of four broad subject areas crucial to water quality management: (1) Comprehensive Planning; (2) Legislative and Regulatory

Issues; (3) Science and Technology; and (4) Education and Resource Development. Each TAC compiled a baseline inventory and initial assessment of activities and issues for its respective subject area during the first phase of the project, and is now conducting a more intensive issues characterization and implementing specific action items identified in the June 2001 Clean Water Strategic Plan. Technical Workgroups generally explore more focused issues. During 2001, Technical Workgroups emphasized stormwater permit compliance, and developed eight model program guides and other work products intended to ensure public input during the development of these programs. Technical Workgroups will continue to deal with specific focused issues.

To provide information on meetings, work products, and other valuable links to the public and interested parties, a Project Clean Water website (www.projectcleanwater.org) was launched in January 2001. To date, interested parties have extensively utilized the site to post various work products for review and comment. It is the goal of the program to establish this site as a centralized source of water quality information for the San Diego region.

In November 2002, a draft copy of the *San Diego Bay Watershed URMP* was placed on the website. Project Clean Water stakeholders were notified via e-mail and encouraged to review and comment on the document. San Diego Bay Watershed Copermittees will continue to use Project Clean Water as a vehicle to update stakeholders and encourage feedback as the workgroup continues to develop and implement the Watershed URMP and other watershed related management plans.

7.2.4 City of San Diego Clean Water Task Force

In April 2001, the City of San Diego Clean Water Task Force was established by City of San Diego Mayor Dick Murphy to advise the Mayor and City Council on water quality issues. “Cleaning up our beaches and bays” is one of the Mayor’s top ten goals. The Task Force, co-chaired by Mayor Murphy and San Diego City Councilmember Scott Peters, consists of elected officials (including the County and Port of San Diego), academics, environmentalists, business interests, professionals, John Robertus, Executive Director of the Regional Board, and other agency representatives.

The Task Force meets routinely and will provide ample opportunities to obtain input from community stakeholders and government agencies. Thus far, the Clean Water Task Force has reviewed and provided input in the updated City of San Diego Stormwater Ordinance (and related revisions to the Land Development Code), the *Model Standard Urban Stormwater Mitigation Plan (SUSMP)*, and various water quality projects. The Task Force has also advocated for state funding for specific water quality projects.

7.2.5 Other Public Mechanisms

Watershed planning has become an issue of increasing importance over the past few years. Various local planning efforts provide existing forums for exploring both the development of watershed and jurisdictional activities and programs.

Discretionary Project Review Process

As previously discussed in Section 6, the public has the opportunity to comment on and to participate in hearings related to stormwater compliance by proposed discretionary (development) projects. All such projects require some form of California Environmental Quality Act (CEQA) compliance, with related public notice and comment opportunities. The consideration of projects by any hearing body involves public hearing and notification procedures.

Direct Interaction

In addition to those methods already described, the San Diego Bay Watershed Copermittees rely heavily on the interaction of their staff with members of the public during their job duties. Staff members with program implementation responsibilities will receive targeted training to increase their understanding of urban runoff issues as part of their *Jurisdictional Urban Runoff Management Programs*. The interaction of these staff, with the public through various means (e.g., permitting, inspections, presentations, etc.), will provide an additional avenue for obtaining direct feedback from watershed stakeholders.

Section 8: Educational Component

Participating jurisdictions recognize that due to the very nature of non-point source pollution, public education is an essential strategy to protect every watershed. In order to reduce pollution, all those who live, visit, and conduct business within our watersheds must become informed and involved. Making all County residents aware of the importance of individual actions in protecting our water resources and promoting watershed stewardship are crucial components for the success of this program. Therefore, Objective No. 3 of the *San Diego Bay Watershed URMP* is to enhance public understanding of sources of water pollution.

8.1 Current Education Activities

Currently, stormwater education within the region is conducted on two levels: the regional and the jurisdictional levels. Some examples of ongoing educational activities at each of these levels are identified in below:

Table 8-1 Ongoing education activities.

Regional	Project Clean Water	County initiated effort provides the forum for information sharing to promote regional collaboration and consistency in outreach. The Education and Resource Development Technical Advisory Committee has been meeting since November 1, 2000. This TAC, which broadly encompasses a variety of outreach topics, works closely with the Copermittees' Education Technical Workgroup on stormwater and urban runoff outreach activities.
	Think Blue Media Campaign (City of San Diego, Port of San Diego, County of San Diego, and Caltrans District 11)	Bilingual (English/Spanish) television and radio Public Service Announcement advertising campaign airing on 33 local broadcast outlets. Campaign developed and administered by the City of San Diego with financial support from the County and Port of San Diego as well as California Department of Transportation – San Diego Office.

	Industrial/Commercial Workshops (All jurisdictions)	Series of industry specific workshops scheduled through out the county. Featured speakers and panelists provide attendees with the most up-to-date information about stormwater requirements and Best Management Practices (BMPs). Automotive, landscaping, mobile services, and restaurant industries have been targeted to date.
Jurisdictional	Stormwater Public Presentations (Participating jurisdictions)	Regular presentations are made to community planning groups and other interested groups. Presentations content consists of general information about the municipal storm drain system, sources of non-point pollution, BMPs, as well as good housekeeping practices.
Jurisdictional	Other Public Presentations (Participating jurisdictions)	Regular presentations are made to community business and trade associations. Presentations content is tailored to meet the needs of the audience and specific Best Management Practices (BMPs) are identified.
Jurisdictional	San Diego School District – Water Cycle Curriculum Integration (City of San Diego)	City of San Diego is working with the San Diego School District to develop an education module for integration into the schools curriculum for grades K-12 on water cycle and water quality awareness. The goal of this effort if to foster stewardship of San Diego's unique marine environment among school age children.
Jurisdictional	School Presentations (County of San Diego)	Bilingual (English/Spanish) water quality educational program for grades K-6. Participation at the High School level is accomplished through presentations made in school-wide Environmental Wellness Fairs.
Jurisdictional	RCD School Partnership Program (Port of San Diego)	For the past eight years, the Port of San Diego has entered into a cooperative partnership with the Resource Conservation District of Greater San Diego County (RCD) to educate students and teachers about stormwater impacts. The RCD uses classroom materials, student activities, and take home materials to increase the students' interest in

		promoting pollution prevention and protecting San Diego Bay from stormwater pollution. The RCD measures the program effectiveness utilizing pre- and post-presentation evaluations of the students participating in the program. This education outreach program has been beneficial to the District by increasing public awareness throughout the San Diego Bay watershed and is an integral part of the District's compliance with the Municipal Permit.

8.2 Regional and Jurisdictional Education Strategy

Education practices within the region are generally coordinated among jurisdictions to ensure that the messages are consistent and no conflicting information reaches the public. Additionally, an aggressive program to educate municipal staff has been undertaken by each jurisdiction in the region. It is expected that public agencies need to address watershed-specific issues as we develop a greater understanding of these challenges.

The main objective of the education strategy is to capture audience attention, impart messages that are understood, retained, and ultimately prompt behavioral changes. Establishing key messages – or succinct, attention grabbing, easily understandable and motivational information – is crucial to program success. It is important to note that successful communication campaigns begin with key, core messages, which are repeated often, and given time to become "common knowledge" with target audiences. As time evolves, these core messages are built upon with new and more detailed information. In this manner, multiple messages are not disseminated into the public arena simultaneously, possibly causing confusion and resulting in a lack of attention and recognition. This staged approach will be particularly important under the watershed based program given the extensive amount of information required to be covered and the long term need to address watershed-specific issues as the program evolves.

While key/core program messages remain consistent throughout all communication vehicles, where appropriate, these are tailored for individual target audiences. So, for example, an overall message to "identify and isolate potential flows to a storm drain" is refined for homeowners to identify typical flow sources around the house. For the business community, the message is focused on typical commercial and industrial activities that result in potential flow to storm drains.

Participating jurisdictions will refine current baseline education programs to incorporate watershed-based components as described below.

8.3 Strategy

Watershed education will generally be focused in order to meet the needs of different sub-regions and associated land uses within the watershed. For example, the areas within the watershed under the jurisdiction of the County of San Diego contain primarily very low-density residential development with limited industrial and commercial development. Meanwhile, areas within the cities of San Diego, Chula Vista, National City, Imperial Beach, Lemon Grove, Coronado, and La Mesa are generally intensely developed with a wide variety of land uses. As such, the County will mostly target the residential community within the watershed as industrial/commercial sites are addressed through their jurisdictional program. On the other hand, the cities will target all land uses by incorporating watershed specific principles into the jurisdictional program.

Over the short term, the education program will focus on three basic principles:

(1) What is a watershed?
(2) We all live in a watershed
(3) Watershed stewardship (all individual actions within our watersheds add up in a cumulative way to influence the health of our water resources)

Suitable Best Management Practices (BMPs) will be incorporated into the short-term education program as appropriate to the target audience. Additionally, it is generally recognized that California creeks and rivers are being contaminated with pesticides, primarily diazinon and chlorpyrifos. Within the San Diego region, available data indicates that pesticide pollution is a widespread challenge and will be addressed under the watershed education strategy at the regional level.

Over the long term, the watershed message will be further developed to address other specific constituents of concern within the watershed based on the yearly water quality assessment performed as part of the annual reports associated with the overall program.

The watershed education strategy will be built as a multi-stepped approach that is driven by achievement of milestones as determined through annual assessments.

8.4 Action Plan

The following table identifies the actions that participating jurisdictions will undertake over the short and long term in order to further develop and implement the watershed based education element:

Table 8-2 Education Element – Action Plan.

Tasks	Description	Target Audience(s)	Responsible Party	Schedule
Public Presentations and Media – Watershed Element	Incorporate general watershed concepts and principles into jurisdictional education activities including public presentations and media opportunities. Where appropriate incorporate watershed specific components including identification of receiving waters.	General public including residents and business community	All jurisdictions	Ongoing
School Districts – San Diego Bay Watersheds	Incorporate watershed principles including hands on activities in local waterways into water cycle element to be incorporated into San Diego School District curriculum.	K – 12th children	City of San Diego	Jan 03 – Jan 05
Integrated Pest Management Guide	Educational materials will be developed and widely distributed. Other targeted outreach opportunities such as Point of Purchase campaigns will be explored and integrated with existing efforts as appropriate.	Single family homes and related businesses (landscaping, pest control, nurseries, and agriculture).	All jurisdictions	July 04 – Dec 05 (materials development) Distribution would be ongoing task.
Which is your watershed?	Develop region-wide poster which identifies watersheds and receiving waters to be used in outreach events (such as Earth Fair).	General public but children in particular	All jurisdictions	Jan 04 – Jan 05

Tasks	Description	Target Audience(s)	Responsible Party	Schedule
Watershed brochure	Tailor messages based upon data/information gathered and create a unified information piece, such as a brochure, which includes a map, and highlights targeted messages, as determined by water quality assessment and other available information. Jurisdictions can highlight programs, services, and regular activities as well as feature practices, which address the watershed's critical needs.	General Public	All jurisdictions	July 04 – June 2005 (brochure development) Distribution would be ongoing task.
Project Clean Water Watersheds Web Site	Expand and further develop the regional website to include bulletin boards for each watershed that provide up to date information about the region's watersheds and related activities including volunteering activities.	General Public	County of San Diego assisted by all jurisdictions	2004 - beyond
Partners in Clean Waters	Identify and evaluate efforts by others in the region which support the goals of stormwater program (e.g., water conservation) and pursue partnerships as appropriate.	General Public	City of San Diego; County of San Diego	2004 – beyond

Tasks	Description	Target Audience(s)	Responsible Party	Schedule
Chollas Creek Enhancement Project	Implementation of an outreach effort to educate watershed residents and businesses about general urban runoff and water quality principles, and the importance of Chollas creek to the protection of beneficial uses within the watershed, as well as within receiving waters in San Diego Bay. The goal of this effort is to develop a sense of stewardship for the creek and bay among all of the watershed *citizens.* As part of this effort an anti-trash/litter campaign will also be developed and implemented and annual trash clean-up events will be scheduled in cooperation with stakeholders within the watershed. Additionally, annual hazardous materials collection events will be scheduled in cooperation with community groups. At these events, the City of San Diego Environmental Services Department will collect household hazardous materials and volunteers and City staff will hand out education materials about proper disposal of these chemicals.	Specific land uses adjacent to the project area including commercial sites and private residences.	The City of San Diego and its project partners (City of La Mesa, City of Lemon Grove, Port of San Diego, Environmental Health Coalition, San Diego Baykeeper, Southwestern College and San Diego Unified School District).	Fall 2003 - Winter 2006

Tasks	Description	Target Audience(s)	Responsible Party	Schedule
RCD School Partnership Program	Port of San Diego's Environmental Education Outreach Program to schoolchildren. The program involves using the "Enviroscape Model" to provide a hands-on method of teaching children about urban runoff impacts. The program reached over 250 classrooms at 56 schools in the fiscal year 2000-2001. Using the testing conducted by the teachers before and after the presentations, the RCD reported a "29.7% increase in understanding of watersheds, non-point source pollution, and individual responsibility" for San Diego Bay.	Watershed schoolchildren	Port of San Diego and Resource Conservation District of Greater San Diego County	Fall 2003 – beyond

Section 9: Program Effectiveness Strategy

9.1 Introduction

In order for a plan to be successful, clear goals and objectives must first be established, agreed to, and implemented. Otherwise, program activities and tasks are adopted without an understandable purpose or clear direction. As discussed in Section 1, and echoed throughout the body of the document, participating jurisdictions have identified a program goal and four underlying objectives that will guide decision-making as the watershed program is developed and implemented.

To reiterate, the primary goal of this inter-jurisdictional effort is to positively affect the water resources of the San Diego Bay watershed while balancing economic, social, and environmental constraints. The following objectives have been identified in order to achieve the program goal:

1) Develop/expand methods to assess and improve water quality within the watershed
2) Integrate watershed principles into land use planning
3) Enhance public understanding of sources of water pollution
4) Encourage and develop stakeholder participation

The purpose of this section is to establish an evaluation strategy to determine the effectiveness of these objectives.

9.2 Evaluation Strategy

The strategy to evaluate the effectiveness of the watershed program includes developing objectives that are measurable, have an expected outcome, and an established preliminary performance standard as an indicator of meeting or exceeding expectations. According to the Environmental Protection Agency, “for a watershed management plan to be effective, it should have measurable goals describing desired outcomes and methods for achieving those goals” (USEPA, 1993). Therefore, on an annual basis, participating jurisdiction will assess data collected for each of the objectives listed above to assist in the annual watershed program assessment.

In addition, annual results from the water quality assessment will be integrated into the program as appropriate as well as program effectiveness evaluation where practical. This will provide meaningful feedback to the participating jurisdictions as to whether or not programmatic activities are useful in meeting the overriding goal of the program – to positively affect the water resources of the watershed.

In each future year, the program effectiveness evaluation strategy will consider linkages between water quality and programmatic activities, and the results will be used to alter program delivery, operations, goals, objectives, expected outcomes, or other programmatic actions where possible. As the water quality assessment is expanded, the results will be used to develop targeted remedial actions and may also result in a revision of stated objectives, where and when appropriate. Therefore, the objectives outlined herein are considered to be dynamic, and may be updated in subsequent iterations. It must be noted that the ability of the cities of Chula Vista, Coronado, Imperial Beach, La Mesa, Lemon Grove, National City, San Diego, the County of San Diego, and the Port of San Diego to meet or exceed stated objectives, activities, and performance indicators does not in itself suggest that the program is effective. Rather, the question that must ultimately be answered in evaluating the effectiveness of the program is *"Are program activities an effective method to improve water quality?"*

In order to answer that question, water quality monitoring data must be collected over a long period of time, longer than the life of the current Municipal Permit. Although the stated purpose of the program effectiveness evaluation strategy is to address the long-term effectiveness of selected program activities and elements, intermediate or short-term activities will also be tracked and assessed. This will provide important feedback on more frequent intervals, allowing participating jurisdictions to make adjustments each year as warranted. For this reason, both short-term and long-term activities are discussed together throughout the remainder of this section.

The long-term goal of the program effectiveness evaluation will be to develop and refine programmatic activities that have a positive affect on improving water quality. However, the first few years of the program effectiveness evaluation strategy will examine several key "first steps" (short-term activities) toward meeting this long-term goal. Thereafter, objectives and activities will be assessed annually and modified when linkages to water quality are developed or when modification is appropriate.

The short-term activities will be addressed in each annual report and will answer the following questions:

1. Are the participating jurisdictions able to develop and implement new methods for working together as a watershed group?

2. Are the participating jurisdictions able to implement an outreach program and facilitate a mechanism for broad participation?
3. Are the participating jurisdictions able to determine the effect, if any, of programmatic activities on water quality?

The answers to these questions, coupled with the water quality assessment, will provide one way to assess the program through a continuous feedback-loop of implementation, assessment, and evaluation.

Other direct and indirect assessment measures considered for programmatic evaluation are more fully discussed below:

Direct measures: Direct measures are those that focus on characterizing the quality of water bodies receiving discharges from the storm drain system or on assessing other parameters with an immediate or well-established nexus to changes in the quality of receiving waters. Examples of direct measurement include receiving waters monitoring, estimation of pollutant loadings from specified areas (catchments, municipalities, watersheds, etc.), and focused evaluations of structural Best Management Practices (BMPs). Direct measures generally include actual measurement or quantification of pollutants (e.g., reductions in concentrations of chemicals of concern, etc.), or of the amount of materials extracted or diverted by a BMP (e.g., through household hazardous waste collection, etc.).

Indirect measures: Because direct measures can be difficult and expensive to obtain, and because they often require long assessment periods, a variety of indirect measures are generally used to evaluate stormwater program effectiveness. Indirect measures are based on the assumption that specific program activities are effective in decreasing stormwater pollution and therefore in protecting water quality. They are typically used to assess the performance of non-structural source control BMPs such as storm drain stenciling and public education programs. Indirect measures typically focus on degrees of implementation or comparison to standards or goals rather than actual water quality assessment or measures of pollutant loading. By measuring the degree or success of implementation of these types of BMPs, it may therefore be possible to make inferences about water quality benefits. Inferences, however, are assumptions and should not be given the same weight as direct measures, which provide direct-impact data. Indirect measures should be pursued in combination with more broadly focused direct measures to allow participating jurisdictions to prioritize limited resources, conduct meaningful assessments on intermediate time

frames, and focus their efforts on particular management actions and program elements.

Whether using direct or indirect measures of effectiveness, baseline conditions must be defined. All future comparisons showing improvements could then be made relative to these baseline conditions. In the absence of a well-defined baseline, improvements cannot be adequately measured. A suite of measures that allows for assessment on a variety of levels and time frames will be developed if resources and time permit.

Because program requirements are being implemented and the effectiveness strategies formulated prior to the establishment of a nexus between expected outcome (improved water quality) and program activities, measures of program effectiveness during the first few years will be limited to an accounting of program implementation.

It is expected that the program objectives and management actions will be revised as the program evolves and matures. The objectives outlined in this section represent the first attempt to establish a feedback-loop program evaluation process that addresses both Municipal Permit compliance and water quality impacts at this very early stage of program evaluation.

In summary, the best measure of program effectiveness is improvement in the quality of receiving waters. Where possible, measurement of such changes will be pursued. However, three important limitations should be acknowledged here.

1) Measuring the "quality" of any receiving water is not a straightforward exercise. In many cases, baseline conditions have yet to be reliably established, and considerably more time may be required to do so.
2) Water quality changes in response to program implementation are likely to be very slow and not measurable within this or other near-term Municipal Permit cycle (as shown on the program effectiveness strategy illustration).
3) Establishing a nexus between targeted program activities and water quality conditions (as documented by field data) is difficult because of the geographic scale covered by this program.

The following sections describe the objectives and expected outcomes (based on program elements and actions) for the first annual program effectiveness strategy in an effort to evaluate the effectiveness of their program on water bodies within the watershed.

9.3 Review Of Goal And Objectives

Each objective, the justification for selecting the objective, how the objective ties back to the program goal, and the expected outcome are discussed in more detail below.

Annually, each objective and the ability of the participating jurisdictions to meet the stated activities/tasks that were assigned to each objective will be evaluated for effectiveness in terms of impact on water quality when data for the assessment is available and reliable. This will allow a mechanism for review and improvement of the program.

The process for assessing program effectiveness will be a multivariate approach integrating direct and indirect measures, jurisdictional activities, statistical analysis (when data are available), and performance measures. The overall effectiveness of the entire program will be addressed in the annual report using all relevant information and examining the ability of the participating jurisdictions to meet or exceed the stated goals and performance indicators. It is not likely that direct measures of the watershed program effectiveness on water quality will be available within the life of this permit cycle; however, the participating jurisdictions remain hopeful that the program as developed will move the evaluation a step closer with each annual assessment.

9.3.1 OBJECTIVE #1: Develop/expand methods to improve water quality within the watershed.

Justification

The justification for this objective is obvious in that the purpose of a jurisdictional or watershed stormwater program is to ultimately improve the quality of the water in the watershed. In order to accomplish this, we must expand upon existing methods or develop new methods to improve our understanding of the processes and issues that affect receiving waters. By developing and expanding methods to improve water quality, stakeholders will be able to validate preliminary water quality concerns and identify constituents of concern within the watershed.

Expected Outcome

Over time, the expected outcome of this objective will be multi-faceted:

1) Develop an understanding (characterization) of water bodies within the watershed

2) Identify and/or verify constituents of concern and/or stressors within the watershed
3) Prioritize the constituents of concern and/or stressors within the watershed
4) Develop an action plan to mitigate harmful effects of constituents of concern and/or stressors
5) Transition to watershed-based monitoring program
6) Using the weight of evidence approach, measure changes on water quality

Performance Measure

It cannot be overstated that direct measures are the most definitive way of determining an objective's (as well as the program's) overall effectiveness. However, as echoed previously, establishing useful direct measures may not be feasible at this time.

As noted earlier, much of the relevant water quality information has yet to be collected and/or reviewed as part of this program. Several activities are proposed to obtain this additional water quality data and validate this initial assessment. Once more data are gradually integrated into the watershed program, a baseline can be established. This baseline characterization will support the long-term goal of achieving meaningful measures of program effectiveness.

9.3.2 OBJECTIVE #2: Integrate watershed principles into land use planning.

Justification

Urban runoff does not follow jurisdictional boundaries, and often travels through many jurisdictions while flowing to receiving waters. Land use policies of individual municipalities have the potential to affect water quality in water bodies well beyond jurisdictional boundaries. One of the overriding purposes of the program is to ensure that watershed protection principles are integrated into long-range land use planning activities in a consistent and cost-effective manner.

Expected Outcome

The expected outcome of this objective and related tasks is to improve collaborative efforts among participating jurisdictions. While this outcome is not expected to measurably improve water quality in the near term, increased cross-jurisdictional

coordination within watersheds will likely have a synergistic effect on water quality efforts, thereby indirectly making positive contributions towards water quality.

Performance Measure

As discussed in Section 5, several activities and tasks have been established for this objective. However, trying to measure program effectiveness on activities or tasks that are not easily quantifiable is virtually impossible. As such, participating jurisdictions will track, and report as part of the annual report, the various activities/tasks that have been identified for this objective.

9.3.3 OBJECTIVE #3: Enhance public understanding of sources of water pollution within the watershed.

Justification

Education is the foundation of an effective urban runoff management program and the basis for changes in behavior at the individual and societal levels. Stormwater quality topics can be very focused (identification of the types of source control BMPs) or general (answering the question: What is a watershed?) and can target many audiences to inform them of how individual actions impact water quality and how these impacts can be avoided.

Expected Outcome

The long-term outcome expected from this objective is to improve water quality through a change in human behavior and increased knowledge among the residents and business owners within the San Diego Bay watershed. The short-term expected outcome is the delivery of a consistent message regarding watershed concepts, urban runoff, and pollutant-causing activities with the assumption that (over time) the educational program will produce a change in human behavior, which leads to sustainable, clean waters.

Performance Measure

Surveys are an effective performance measure to determine a population's knowledge or understanding of water quality issues. Under this approach, however, an inference must be made that an increase in awareness translates into a change in public behavior. Through the use of surveys, the effectiveness of program activities can be assessed within a shorter period of time (2-3 years), allowing participating jurisdictions to adjust the activities/tasks accordingly to maximize program effectiveness. The Copermittees will conduct a baseline survey that targets the residential population. The survey or other

measurement tool will assess current levels of knowledge relating to water pollution issues within the watershed.

Participating jurisdictions have also established an extensive list of activities/tasks that are to be completed as part of this objective, with the inference that completing the activities/tasks will indirectly impact water quality within the watershed. Implementation of the various activities/tasks that have been identified to meet this objective will be tracked and reported as part of the annual reporting process.

9.3.4 OBJECTIVE #4: Encourage and enhance stakeholder involvement within the watershed.

Justification

In order to develop an effective plan, the importance of stakeholder input cannot be overstated. There are three important reasons for the need of stakeholder involvement:

1) Stakeholders can have a different perspective on watershed issues. Because stakeholders have varying backgrounds and experience levels, they are sometimes able to identify issues and solutions not previously identified by jurisdictions.
2) Water quality data is collected by a number of different stakeholders for a number of different reasons. Participating jurisdictions can work with stakeholders to pull their data together in an attempt to develop a useful water quality database that helps identify and validate water quality problems as well as possible solutions.
3) It is a prudent planning principle to involve the public in comprehensive plan development, as a watershed plan ultimately impacts stakeholders. As such, it is imperative that stakeholders are clear on the intent and purpose of the plan as well as the activities being identified.

Expected Outcome

The short-term expected outcome is to increase the amount of current stakeholder involvement in watershed related issues. It is assumed that an increase in stakeholder involvement will ultimately lead to improved water quality, which is the long-term expected outcome for this objective. While we will be able to measure the short-term outcomes, the long-term outcome will be difficult, as measurable changes in water quality are not expected within the life of the Permit.

Performance Measure

As discussed in Section 5, several activities and tasks have been established for this objective. To measure this objective, an inference must be made that completing the activities and tasks will indirectly impact water quality within the watershed. Participating jurisdictions will track and report on an annual basis the various activities/tasks that have been identified for this objective.

9.4 Performance Indicators

Standard performance indicators for achieving the objectives would commonly include percent-changes in pollutant loading, water quality field data, community knowledge, etc. Performance indicators are typically established based upon baseline level data, which is not available at this time. Without baseline data, it would be premature to set the performance markers at this time. However, participating jurisdictions have agreed on the following standard performance indicators:

By the end of 2003:

1) Year two assessment to include incorporation of dry weather data collected in 2002 and other data as time and resources allow
2) Evaluation of the year one assessment and prioritization of constituents of concern and/or watershed stressors
3) Implementation of planned actions as presented or modified as necessary

2003 and on-going:

4) Use of feedback-loop method for evaluation of objectives and management actions
5) Continued watershed workgroup meetings and increased public participation in the process
6) A measurable and statistically significant change in the community's general knowledge of watersheds and stormwater pollution prevention

9.5 Conclusions

The nine participating jurisdictions consider this watershed based effort to be in its infancy and expect this program will be refined and augmented over the long term as we develop a better understanding of the complex issues affecting our watersheds and learn to identify and pursue joint opportunities to positively affect the water resources in the San Diego Bay watershed and the region.

To further build upon this initial watershed program, the program has been developed as an iterative process of watershed assessment, priority setting, monitoring, and implementation. At the conclusion of each yearly cycle, the process begins anew, allowing participants to respond to changing conditions or adjust strategies that have not performed as anticipated. This framework establishes mechanisms for the participants to evaluate priorities, improve coordination, assess program goals, and allocate finite in a cost-effective manner.

Adaptive management is a key requirement for the process to work. Adaptive management allows adjustments in the management direction as new information becomes available. The combination of natural variability in the hydrologic cycle and the uncertainty associated with a complex system requires that watershed managers be flexible enough to modify implementation approaches based on progress and available information. Watershed characteristics, sources of pollutants, and management approaches are unique, and therefore, management efforts may not proceed exactly as planned. Adaptive management does not mean that the watershed's water quality goals would be modified based upon lack of progress, but that the results would be used to modify management policies, strategies, practices, and operation and maintenance procedures to reach goals.

Even though priorities will be targeted in a focused manner, it will take time for management activities to produce a quantifiable improvement in water quality. As such, the program includes performance measures and a review mechanism. Performance data collected in subsequent cycles will be used to determine the effectiveness of previous management activities.

As already stated, the *San Diego Bay Watershed Urban Runoff Management Program* signifies the beginning of long-term efforts to protect and enhance the water quality of the river and its tributaries using a cross-jurisdictional approach. The Program was developed with stakeholder participation and will integrate as appropriate with other projects such as the Otay Watershed Management Plan.

The challenge for watershed planning and watershed-based environmental protection is to invigorate local support by addressing local water quality problems and to do so in a

coordinated manner that also enhances any mutual benefits. Using the watershed approach, the cities of Chula Vista, Coronado, Imperial Beach, La Mesa, Lemon Grove, National City, and San Diego, the County of San Diego, and the Port of San Diego aim to protect and enhance aquatic resources in a cost effective, environmentally sensitive, and collaborative manner.

Although this document may not include all water quality programs planned or implemented by the San Diego Bay Watershed Copermittees, it does exemplify the commitment to improved water quality, in particular, and environmental policies, in general. Moreover this dedication to environmental concerns is demonstrated by many of the policies and programs that have already been implemented by the Copermittees in their respective jurisdictions, including habitat or species protection, resource conservation, and regional planning efforts. Collectively, these existing policies and programs provide a solid foundation on which to build the complementary objectives and supporting activities to address the water quality issues in the San Diego Bay watershed.

Section 10: References

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Appendix A: Data

Appendix A contains the Data Tables relevant to the San Diego Bay Watershed from the report entitled *San Diego Region Previous Storm Water Monitoring Review and Future Recommendations Report* (MEC, 2001).

Station: Bramson

Parameter		Units	WQO	Storm Season (October - April) 1994-95 25 December	11 January	14 February	16 April	1995-96 1 November	22 January	5 March	1996-97 30 October	21 November
Water Quality												
	AMMONIA AS NITROGEN	MG/L	0.025(a)	0.3	0.2	0.4	0.9	1.1	0.45	0.37	0.7	0.34
	BOD	MG/L	30	16.6	17.5	17.3	21.3	25.1	8.6	6.8	13.2	9.1
	CHEMICAL OXYGEN DEMAND	MG/L	120	150	82	117	202	265	106	83	61	42
	DISSOLVED PHOSPHORUS	MG/L	2	0.2	0.4	0.6	0.5	0.6	0.6		0.5	0.3
	ELECTRICAL CONDUCTIVITY	UMHOS/CM		83.7	154.4	95	116	202	140	234	68.1	70.1
	NITRATE NITROGEN as N	MG/L	10	0.7	1.2	1.6	0.88	3.1	0.8	0.66	1.5	0.72
	NITRITE NITROGEN as N	MG/L	1.00	<0.05	<0.05	<0.05	<0.05					
	OIL AND GREASE	MG/L	15	1.2	2.5	1.7	3.4	11.6	5.7	1.8	5.6	7.9
	TEMPERATURE	C						13	11	17		20
	TOTAL CYANIDE	MG/L	0.022	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01
	TOTAL DISSOLVED SOLIDS	MG/L		40	160	94	130	216	92	198	108	52
	TOTAL HARDNESS	MG/L		30	38	32	29	60.5	22.8	56.8	32.2	20.1
	TOTAL KJELDAHL NITROGEN	MG/L	1.5	1.1	<1	<1	3.3	4.8	1.9	1.6	2.3	0.97
	TOTAL PHOSPHORUS	MG/L	2	0.3	0.5	0.7	0.7	0.8	0.2	0.4	0.6	0.5
	TOTAL SUSPENDED SOLIDS	MG/L	100	140	130	65	67	96	54	40	48	<20
	TURBIDITY	NTU		12	12	26	30	47	13.8	11.9	23	9.9
	pH	pH Units	6-9	7.7	7.1	7.22	8		7.7	7.4		7.3
Bacteriological												
	FECAL COLIFORM	MPN/100ML	200	9000	>160000	50000	17000	>16000	9000	>16000	30000	>24000
	FECAL STREPTOCOCCI	MPN/100ML		160000	160000	90000	28000	>16000	16000	>16000	90000	>24000
	TOTAL COLIFORM	MPN/100ML	1,000	22000	>160000	>160000	90000	>16000		>16000	30000	>24000
Pesticides/PCBs												
	AROCLOR-1016	UG/L	0.127		<10	<10	<10	<0.5	<0.5	<1	<1	<1
	AROCLOR-1221	UG/L	100		<30	<30	<30	<0.5	<0.5	<2	<2	<2
	AROCLOR-1232	UG/L	0.318		<10	<10	<10	<0.5	<0.5	<1	<1	<1
	AROCLOR-1242	UG/L	0.2		<10	<10	<10	<0.5	<0.5	<1	<1	<1
	AROCLOR-1248	UG/L	2.54		<10	<10	<10	<0.5	<0.5	<1	<1	<1
	AROCLOR-1254	UG/L	100		<36	<36	<36	<0.5	<0.5	<1	<1	<1
	AROCLOR-1260	UG/L	0.477		<10	<10	<10	<0.5	<0.5	<1	<1	<1
	CHLORDANE	UG/L	2.4		<10	<10	<10	<0.5	<0.5	<1	<1	<1
Semi-Volatiles												
	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	5.9		15.6	17.2	<2.5		42	<10	43	36
	DI-N-BUTYL PHTHALATE	UG/L	12,000		5.07	<2.5	<2.5		<10	<10	<10	<10
Other Organics												
	SURFACTANTS (MBAS)	MG/L		0.26	0.21	0.71	0.78	0.63	0.36	0.38	0.3	0.27
	TOTAL PETROLEUM HYDROCARBONS (TPH)	MG/L	0.092		<0.5	<0.5	0.61	3.3	1.1	1.5	1.8	0.8
Total Metals												
	ANTIMONY	MG/L	0.636	<0.001	0.0011	0.0017	0.0012	0.0023				
	ARSENIC	MG/L	0.34	<0.005	0.0058	0.005	<0.005	0.018				
	CADMIUM	MG/L	0.0046	0.0014	0.0009	0.0008	0.0015	0.0044				
	CHROMIUM	MG/L	0.02	0.0039	0.0027	0.0045	0.0035	0.007				
	COPPER	MG/L	0.0135	0.038	0.017	0.027	0.035	0.074				
	LEAD	MG/L	0.082	0.062	0.027	0.028	0.039	0.0568				
	NICKEL	MG/L	0.47	0.01	0.006	0.0085	0.01	0.024				
	SELENIUM	MG/L	0.02	<0.0005	0.0005	<0.0005	<0.0005	0.0023				
	THALLIUM	MG/L	0.0063	<0.001	<0.001	<0.001	<0.001	0.002				
	ZINC	MG/L	0.122	0.4	0.17	0.18	0.4	0.561				
Dissolved Metals												
	ANTIMONY	MG/L	(b)						<0.0015	0.0016	<0.003	<0.003
	ARSENIC	MG/L	(b)						0.003	0.003	0.002	0.002
	CADMIUM	MG/L	(b)						<0.00025	0.00048	0.0008	<0.0005
	COPPER	MG/L	(b)						**0.016**	**0.022**	**0.04**	**0.01**
	LEAD	MG/L	(b)						**0.003**	**0.016**	**0.003**	**0.004**
	NICKEL	MG/L	(b)						0.006	0.008	<0.01	<0.01
	THALLIUM	MG/L	(b)						<0.001	0.008	<0.002	<0.003
	ZINC	MG/L	(b)						**0.096**	**0.127**	**0.29**	**0.11**

(a) Water Quality Objective for unionized ammonia is .025mg/L. Insufficient information is available to calculate unionized ammonia at this time.

(b) Water Quality Objectives for dissolved metal fractions are based on total hardness and are calculated as described by the EPA Federal Register Doc. 40 CFR Part 131, May 18, 2000.

Red values indicate concentrations that exceed Water Quality Objective for chronic toxicity.

Bold black values indicate concentrations that exceed Water Quality Objective for chronic and acute toxicity.

Blue values indicate detectable concentrations in exceedance of the Water Quality Objective.

Orange values indicate non-detectable concentrations where the detection limit exceeds the Water Quality Objective.

Station: Bramson

Parameter		Units	WQO	Storm Season (October - April) 1997-98 10 November	26 November	6 December	3 February	25 March
Water Quality								
	AMMONIA AS NITROGEN	MG/L	0.025(a)		1.76	0.91		0.5
	BOD	MG/L	30		**66**	29		17
	CHEMICAL OXYGEN DEMAND	MG/L	120		**170**	44		21
	DISSOLVED PHOSPHORUS	MG/L	2		0.41	0.26		0.17
	ELECTRICAL CONDUCTIVITY	UMHOS/CM		383	187	142	74	114
	NITRATE NITROGEN as N	MG/L	10		1.04	0.59		0.5
	NITRITE NITROGEN as N	MG/L	1		0.21	0.11		<0.05
	OIL AND GREASE	MG/L	15	4.0	12.7	0.6	<0.5	4.6
	TEMPERATURE	C					16	16
	TOTAL CYANIDE	MG/L	0.022	<0.01	0.13	<0.02	<0.02	<0.02
	TOTAL DISSOLVED SOLIDS	MG/L			223	168		82
	TOTAL HARDNESS	MG/L			30	22		22.5
	TOTAL KJELDAHL NITROGEN	MG/L	1.5		**3.32**	<1		<1
	TOTAL PHOSPHORUS	MG/L	2		0.67	0.38		0.33
	TOTAL SUSPENDED SOLIDS	MG/L	100		29	17		**588**
	TURBIDITY	NTU			75	20		28
	pH	pH Units	6-9	7.9			7.3	7.4
Bacteriological								
	FECAL COLIFORM	MPN/100ML	200	**17000**	**>20000**	**11800**	**1920**	**7380**
	FECAL STREPTOCOCCI	MPN/100ML		**160000**	**2400**	**16000**	**50**	<2
	TOTAL COLIFORM	MPN/100ML	1,000	**160000**	**>20000**	**>20000**	**16500**	**>20000**
Pesticides/PCBs								
	AROCLOR-1016	UG/L	0.127		<5	<5		<5
	AROCLOR-1221	UG/L	100		<0.65	<0.65		<0.65
	AROCLOR-1232	UG/L	0.318		<0.65	<0.65		<0.65
	AROCLOR-1242	UG/L	0.2		<0.65	<0.65		<0.65
	AROCLOR-1248	UG/L	2.54		<0.65	<0.65		<0.65
	AROCLOR-1254	UG/L	100		<0.65	<0.65		<0.65
	AROCLOR-1260	UG/L	0.477		<0.65	<0.65		<0.65
	CHLORDANE	UG/L	2.4		<5	<5		<5
Semi-Volatiles								
	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	5.9		**64.5**	**13.7**		**12**
	DI-N-BUTYL PHTHALATE	UG/L	12,000		20.2	36.5		38.4
Other Organics								
	SURFACTANTS (MBAS)	MG/L			0.57	0.14		0.29
	TOTAL PETROLEUM HYDROCARBONS (TPH)	MG/L	0.092		<0.5	<0.5		<0.5
Total Metals								
	ANTIMONY	MG/L	0.636					
	ARSENIC	MG/L	0.34		<0.053	<0.053		<0.053
	CADMIUM	MG/L	0.0046		<0.004	**0.033**		<0.004
	CHROMIUM	MG/L	0.02		<0.007	<0.007		<0.007
	COPPER	MG/L	0.0135		**0.051**	**0.038**		**0.129**
	LEAD	MG/L	0.082		<0.042	<0.042		<0.042
	NICKEL	MG/L	0.47		0.03	<0.015		<0.015
	SELENIUM	MG/L	0.02		<0.075	<0.075		<0.075
	THALLIUM	MG/L	0.0063		<0.04	<0.04		<0.04
	ZINC	MG/L	0.122		**0.267**	**0.34**		**0.16**

(a) Water Quality Objective for unionized ammonia is .025mg/L. Insufficient information is available to calculate unionized ammonia at this time.

(b) Water Quality Objectives for dissolved metal fractions are based on total hardness and are calculated as described by the EPA Federal Register Doc. 40 CFR Part 131, May 18, 2000.

Red values indicate concentrations that exceed Water Quality Objective for chronic toxicity.

Bold black values indicate concentrations that exceed Water Quality Objective for chronic and acute toxicity.

Blue values indicate detectable concentrations in exceedance of the Water Quality Objective.

Orange values indicate non-detectable concentrations where the detection limit exceeds the Water Quality Objective.

Station: California

Parameter		Units	WQO	Storm Season (October - April) 1996-97 21 November	9 December	1997-98 10 November	26 November	3 February	1998-99 28 November	25 January	15 March	1999-00 12 February	5 March	17 April
Water Quality														
	AMMONIA AS NITROGEN	MG/L	0.025(a)	0.21	0.45	0.55	1.09	<0.5	0.94	0.79	2.28	1.28	0.11	<0.1
	BOD	MG/L	30	9.1	14	39	62	4	<3	<3	24	7.6	5.25	5
	CHEMICAL OXYGEN DEMAND	MG/L	120	33	35	85	100	17	38	32	160	50	48	35
	DISSOLVED PHOSPHORUS	MG/L	2	0.5	0.2	0.5	0.54	0.21	0.41	0.34	0.18	0.45	0.32	0.18
	ELECTRICAL CONDUCTIVITY	UMHOS/CM		103	279	732	337	61	451	221	136	118	107	98
	LABORATORY PH	UNITS	6-9									7.5	7.02	7.03
	NITRATE NITROGEN as N	MG/L	10	0.84	0.92	2.8	1	0.5	1.7	1.1	0.45	2.67	1.24	2.32
	NITRITE NITROGEN as N	MG/L	1				<0.05	<0.05	0.19	0.07	<0.05	0.064	<0.05	<0.05
	OIL AND GREASE	MG/L	15	7.1	5.6	2.9	1.3	<0.5	4.6	0.9	<0.5	1.8	1.8	5.6
	TEMPERATURE	C		20	20	19	20	15						
	TOTAL DISSOLVED SOLIDS	MG/L		52	94	167	92	98	111	97	407	132	116	117
	TOTAL HARDNESS	MG/L		23.3	45.3	44.2	16.5	14.4	32.9	24.5	130	44.3	35.3	25
	TOTAL KJELDAHL NITROGEN	MG/L	1.5	1.1	1	1.5	1.41	1.6	2.1	0.94	5.62	3.7	2.26	2.61
	TOTAL PHOSPHORUS	MG/L	2	0.5	0.3	0.9	0.7	0.36	0.46	0.33	0.32	0.51	0.39	0.2
	TOTAL SUSPENDED SOLIDS	MG/L	100	66	64	350	140	198	<1	164	372	45	39	42
	TURBIDITY	NTU		39	53	62	71	43	10	22	68	18	32	35
	pH	pH Units	6-9	6.9	4.2	8.3	6.9	7.3	6.65	6.21	6.05	8.3	8.4	9
Bacteriological														
	FECAL COLIFORM	MPN/100ML	200	>24000	>16000	90000	10900	9450	>16000	>1600	>1600	>1600	>1600	>1600
	FECAL STREPTOCOCCI	MPN/100ML		>24000	>16000	160000	230	170	240	>1600	240	<2	>1600	>1600
	TOTAL COLIFORM	MPN/100ML	1,000	>24000	>16000	>160000	>20000	>20000	344800	307600	>2419000	>1600	>1600	>1600
Pesticides/PCBs														
	CHLORPYRIFOS	UG/L									<0.5		<0.5	<0.5
	DIAZINON	UG/L							0.72	0.47	0.79	<0.5	<0.5	0.08
	MALATHION	UG/L												
Semi-Volatiles														
	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	5.9	24	<10		94.5	10.9						
	BUTYL BENZYL PHTHALATE	UG/L	3,000	<10	<10		29.3	<2.5						
	DI-N-BUTYL PHTHALATE	UG/L	12,000	<10	<10		49.8	55.7						
Other Organics														
	SURFACTANTS (MBAS)	MG/L		<0.1	<0.1	0.14	0.062	<0.05	0.15	0.12	0.17	0.47	0.44	0.14
Total Metals														
	ANTIMONY	MG/L	0.636	<0.003	<0.003	<0.0015	<32	<32	0.003	0.0019	<0.0015	<0.0015	<0.0015	<0.0015
	ARSENIC	MG/L	0.34	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.006	<0.002	0.005	0.003
	CADMIUM	MG/L	0.0046	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.002	0.001	<0.00025
	CHROMIUM	MG/L	0.02	<0.01	<0.01	<0.01	0.016	0.024	<0.01	0.019	0.071	<0.01	<0.01	<0.01
	COPPER	MG/L	0.0135	0.01	0.02	0.035	0.061	0.037	<0.005	<0.005	0.1	0.033	0.017	<0.005
	LEAD	MG/L	0.082	0.015	0.019	0.005	<0.042	<0.042	0.009	0.006	0.145	0.015	<0.001	<0.001
	NICKEL	MG/L	0.47	<0.01	<0.01	0.006	0.038	<0.015	0.03	0.048	0.029	<0.005	<0.005	<0.005
	SELENIUM	MG/L	0.02	0.004	<0.004	<0.001	<0.075	<0.075	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	ZINC	MG/L	0.122	0.09	0.07	0.176	0.329	0.07	0.06	0.036	0.51	0.11	0.094	0.06
Dissolved Metals														
	ANTIMONY	MG/L	(b)	<0.003	0.004							<0.0015	<0.0015	<0.0015
	ARSENIC	MG/L	(b)	<0.002	0.02							0.001	0.004	<0.001
	COPPER	MG/L	(b)	**<0.01**	**0.02**							<0.005	<0.005	<0.005
	LEAD	MG/L	(b)	**0.004**	**0.007**							<0.001	<0.001	<0.001
	NICKEL	MG/L	(b)	<0.01	<0.01							<0.005	<0.005	<0.005
	ZINC	MG/L	(b)	**<0.05**	**0.07**							**0.19**	**0.053**	0.009

(a) Water Quality Objective for unionized ammonia is .025mg/L. Insufficient information is available to calculate unionized ammonia at this time.

(b) Water Quality Objectives for dissolved metal fractions are based on total hardness and are calculated as described by the EPA Federal Register Doc. 40 CFR Part 131, May 18, 2000.

Red values indicate concentrations that exceed Water Quality Objective for chronic toxicity.

Bold black values indicate concentrations that exceed Water Quality Objective for chronic and acute toxicity.

Blue values indicate detectable concentrations in exceedance of the Water Quality Objective.

Orange values indicate non-detectable concentrations where the detection limit exceeds the Water Quality Objective.

Station: California

Parameter		Units	WQO	Storm Season (October - April) 2000-01 27 October	8 January	23 February
Water Quality						
	AMMONIA AS NITROGEN	MG/L	0.025(a)	0.95	1.5	0.4
	BOD	MG/L	30	12	28	11
	CHEMICAL OXYGEN DEMAND	MG/L	120	125	95	63
	DISSOLVED PHOSPHORUS	MG/L	2	0.07	0.91	0.36
	ELECTRICAL CONDUCTIVITY	UMHOS/CM		133	1360	121
	NITRATE NITROGEN as N	MG/L	10	1.5	2.5	0.8
	NITRITE NITROGEN as N	MG/L	1	0.1	0.16	0.06
	OIL AND GREASE	MG/L	15	4.0	3.0	2.0
	TEMPERATURE	C				
	TOTAL DISSOLVED SOLIDS	MG/L		73	164	105
	TOTAL HARDNESS	MG/L		33	50	34
	TOTAL KJELDAHL NITROGEN	MG/L	1.5	1.04	6	1.92
	TOTAL PHOSPHORUS	MG/L	2	0.1	0.96	0.38
	TOTAL SUSPENDED SOLIDS	MG/L	100	43	406	<20
	TURBIDITY	NTU		38.2	130	61
	pH	pH Units	6-9	7.6	8.1	7.2
Bacteriological						
	ENTEROCOCCI	MPN/100ML		230000	40000	13000
	FECAL COLIFORM	MPN/100ML	200	28000	70000	23000
	FECAL STREPTOCOCCI	MPN/100ML		230000	40000	23000
	TOTAL COLIFORM	MPN/100ML	1,000	130000	350000	50000
Pesticides/PCBs						
	CHLORPYRIFOS	UG/L		<0.05	<0.5	0.09
	DIAZINON	UG/L		0.66	0.73	0.16
	MALATHION	UG/L		0.52	1	0.19
Other Organics						
	SURFACTANTS (MBAS)	MG/L		0.6	<0.5	<0.5
Total Metals						
	ANTIMONY	MG/L	0.636	0.003	0.006	<0.002
	ARSENIC	MG/L	0.34	0.003	0.004	0.003
	CADMIUM	MG/L	0.0046	<0.001	<0.001	0.001
	CHROMIUM	MG/L	0.02	0.007	0.014	0.006
	COPPER	MG/L	0.0135	0.032	0.065	0.021
	LEAD	MG/L	0.082	0.014	0.062	0.018
	NICKEL	MG/L	0.47	0.009	0.013	0.005
	SELENIUM	MG/L	0.02	<0.002	<0.002	<0.002
	ZINC	MG/L	0.122	0.12	0.35	0.11
Dissolved Metals						
	ANTIMONY	MG/L	(b)	0.002	<0.002	<0.002
	ARSENIC	MG/L	(b)	0.003	0.002	0.002
	COPPER	MG/L	(b)	**0.024**	**0.011**	**0.011**
	LEAD	MG/L	(b)	0.002	<0.002	<0.002
	NICKEL	MG/L	(b)	0.008	0.006	0.003
	ZINC	MG/L	(b)	**0.08**	**0.08**	0.03

(a) Water Quality Objective for unionized ammonia is .025mg/L. Insufficient information is available to calculate unionized ammonia at this time.

(b) Water Quality Objectives for dissolved metal fractions are based on total hardness and are calculated as described by the EPA Federal Register Doc. 40 CFR Part 131; May 18, 2000.

Red values indicate concentrations that exceed Water Quality Objective for chronic toxicity.

Bold black values indicate concentrations that exceed Water Quality Objective for chronic and acute toxicity.

Blue values indicate detectable concentrations in exceedance of the Water Quality Objective.

Orange values indicate non-detectable concentrations where the detection limit exceeds the Water Quality Objective.

Station: Chollas

Parameter		Units	WQO	Storm Season (October - April) 1993-94 17 February	24 March	24 April	1995-96 1 November	22 January	31 January	5 March	1996-97 9 December	16 January	1997-98 10 November	6 December	14 March
Water Quality															
	AMMONIA AS NITROGEN	MG/L	0.025a	0.4		0.9	0.64	0.31	<0.2	1.8	<0.2	<0.2	1.3	0.4	10
	BOD	MG/L	30	10	<3	38.9	14.5	6	<5	16	7.8	15	49	24	40
	CHEMICAL OXYGEN DEMAND	MG/L	120	47		149	122	90	87	321	31	73	146	44	135
	DISSOLVED PHOSPHORUS	MG/L	2	0.2	0.2	0.4	0.5	0.6	0.7		0.2	0.3	0.4	<0.1	1.41
	ELECTRICAL CONDUCTIVITY	UMHOS/CM					693	179		427	334	487	310	155	1146
	NITRATE NITROGEN as N	MG/L	10	2.7		1.4	1.8	1.2	0.91	0.82	0.8	0.81	3.5	0.52	0.4
	NITRITE NITROGEN as N	MG/L	1	<0.05		<0.05								0.08	<0.05
	OIL AND GREASE	MG/L	15	2.2	0.6	0.7	3.3	3.4		3.1	6.0	1.8	6.9	<0.5	4.6
	TEMPERATURE	C					16	15		15	18	16	17		
	TOTAL CYANIDE	MG/L	0.022	0.03	<0.02	<0.02	<0.01	<0.01			<0.01	<0.01	<0.01	<0.02	<0.02
	TOTAL DISSOLVED SOLIDS	MG/L		250	150	270	250	264	148	204	194	278	374	250	344
	TOTAL HARDNESS	MG/L		120	71	110	91	74.5	52.2	78.6	57.4	61.5	116	39	96.4
	TOTAL KJELDAHL NITROGEN	MG/L	1.5	4.3		4.4	3.4	1.9	1.8	2.7	1.1	1.8	1.6	<1	15
	TOTAL PHOSPHORUS	MG/L	2	0.4	0.7	0.9	0.7	0.3	0.3	1.1	0.3	0.5	0.7	<0.1	2.2
	TOTAL SUSPENDED SOLIDS	MG/L	100	220	700	400	75	184	92	130	92	488	182	315	805
	TURBIDITY	NTU		86	54	54	54.2	68.3	5.7	18.4	37	290	90	29	24
	pH	pH Units	6-9	7.9	8.4	8.3		7		7.4	5.6	7.4	8		
Bacteriological															
	FECAL COLIFORM	MPN/100ML	200	9300	24000	240000	>16000	16000		>16000	>16000	16000	>160000	9450	
	FECAL STREPTOCOCCI	MPN/100ML		11000	110000	>110000	>16000	>16000		>16000	>16000	110	>160000	16000	
	TOTAL COLIFORM	MPN/100ML	1,000	240000	240000	240000	>16000			>16000	>16000	>16000	>160000	>20000	
Pesticides/PCBs															
	AROCLOR-1016	UG/L	0.127	<10		<10	<0.5	<0.5	<0.5	1	<1	<1	<1	<5	<5
	AROCLOR-1221	UG/L	100	<10		<10	<0.5	<0.5	<0.5	2	<2	<2	<2	<0.65	<0.65
	AROCLOR-1232	UG/L	0.318	<30		<30	<0.5	<0.5	<0.5	1	<1	<1	<1	<0.65	<0.65
	AROCLOR-1242	UG/L	0.2	<10		<10	<0.5	<0.5	<0.5	1	<1	<1	<1	<0.65	<0.65
	AROCLOR-1248	UG/L	2.54	<10		<10	<0.5	<0.5	<0.5	1	<1	<1	<1	<0.65	<0.65
	AROCLOR-1254	UG/L	100	<36		<36	<0.5	<0.5	<0.5	1	<1	<1	<1	<0.65	<0.65
	AROCLOR-1260	UG/L	0.477	<10		<10	<0.5	<0.5	<0.5	1	<1	<1	<1	<0.65	<0.65
	CHLORDANE	UG/L	2.4	<10		<10	<0.5	<0.5	<0.5	1	<1	<1	<1	<5	<5
	TOXAPHENE	UG/L	0.73	<1		<1	<1	<1	<1	5	<5	<5	<5	<10	<10
	beta-BHC	UG/L	0.046	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.24	<0.11	<0.11
	gamma-BHC (LINDANE)	UG/L	0.95	<0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.062	<0.06	<0.06
Semi-Volatiles															
	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	5.9	11.5		11.3	63	<10	<10	23	<10	<10	24	8.72	37.5
	BUTYL BENZYL PHTHALATE	UG/L	3,000	<2.5		<2.5	<10	<10	<10	<10	<10	<10	<10	<2.5	13.3
	DI-N-BUTYL PHTHALATE	UG/L	12,000	15.5		5.32	<10	<10	<10	<10	<10	<10	<10	34.6	15.9
Other Organics															
	SURFACTANTS (MBAS)	MG/L		0.12	0.47	0.69	0.16		<0.1	1	<0.1	<0.1	<0.1	0.07	0.66
	TOTAL PETROLEUM HYDROCARBONS (TPH)	MG/L	0.092				1.8		<0.5	3.2					
	TOTAL PHENOLS	MG/L	4,600	<0.005		0.02									

(a) Water Quality Objective for unionized ammonia is .025mg/L. Insufficient information is available to calculate unionized ammonia at this time.

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Red values indicate concentrations that exceed Water Quality Objective for chronic toxicity.

Bold black values indicate concentrations that exceed Water Quality Objective for chronic and acute toxicity.

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Orange values indicate non-detectable concentrations where the detection limit exceeds the Water Quality Objective.

Station: Chollas

Parameter		Units	WQO	Storm Season (October - April)											
				1993-94			1995-96				1996-97		1997-98		
				17 February	24 March	24 April	1 November	22 January	31 January	5 March	9 December	16 January	10 November	6 December	14 March
Total Metals															
	ANTIMONY	MG/L	0.636	<0.001	0.0013	<0.001	0.001				<0.003	<0.003	0.0016	<32	<32
	ARSENIC	MG/L	0.34	<0.005	<0.005	<0.005	0.006				0.004	0.005	0.002	<0.053	<0.053
	CADMIUM	MG/L	0.0046	0.0015	0.0017	0.0012	0.0006				0.0006	0.0007	0.0003	<0.004	<0.004
	CHROMIUM	MG/L	0.02	0.0048	0.0058	0.0084	<0.005				<0.01	0.01	<0.005	<0.007	0.011
	COPPER	MG/L	0.0135	0.034	0.029	0.044	0.046				0.02	0.01	0.017	0.028	0.028
	LEAD	MG/L	0.082	0.11	0.14	0.07	0.0229				0.016	0.058	0.003	<0.042	0.095
	NICKEL	MG/L	0.47	0.011	0.0077	0.014	0.011				<0.01	<0.01	0.009	<0.015	<0.015
	SELENIUM	MG/L	0.02	<0.0005	<0.0005	<0.0005	0.0023				<0.004	<0.003	0.001	<0.075	<0.075
	SILVER	MG/L	0.004	<0.0002	<0.0002	<0.0002	<0.005				<0.005	0.045	<0.005	<0.007	<0.007
	THALLIUM	MG/L	0.0063	<0.001	<0.001	<0.001	0.002				<0.003	<0.005	<0.002	<0.04	<0.04
	ZINC	MG/L	0.122	0.26	0.24	0.32	<0.025				0.07	0.2	0.176	0.11	0.092
Dissolved Metals															
	ANTIMONY	MG/L	(b)					<0.0015	<0.0015	<0.0015	<0.003	<0.003			
	ARSENIC	MG/L	(b)					0.004	0.003	0.002	0.005	<0.003			
	CADMIUM	MG/L	(b)					<0.00025	<0.00025	0.00044	0.0005	0.0012			
	CHROMIUM	MG/L	(b)					<0.005	<0.005	<0.005	<0.01	<0.01			
	COPPER	MG/L	(b)					0.012	0.008	0.034	0.01	0.02			
	LEAD	MG/L	(b)					0.002	0.002	0.018	0.015	0.007			
	NICKEL	MG/L	(b)					<0.005	<0.005	0.009	<0.01	0.02			
	SELENIUM	MG/L	(b)					<0.001	<0.001	<0.001	<0.002	<0.003			
	THALLIUM	MG/L	(b)					<0.001	0.002	<0.001	<0.003	<0.005			
	ZINC	MG/L	(b)					<0.025	0.032	0.141	0.08	0.04			

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Orange values indicate non-detectable concentrations where the detection limit exceeds the Water Quality Objective.

Station: Chollas

Parameter				Storm Season (October - April)								
				1998-99			1999-00			2000-01		
		Units	WQO	8 November	25 January	15 March	12 February	5 March	17 April	27 October	8 January	13 February
Water Quality												
	AMMONIA AS NITROGEN	MG/L	0.025(a)	1	0.78	1.06	1.65	<0.1	0.21	1.2	1.5	0.6
	BOD	MG/L	30	19	6	11	7.8	2.54	6.1	15	**32.2**	<2
	CHEMICAL OXYGEN DEMAND	MG/L	120	59	41	85	41	104	57	150	109	100
	DISSOLVED PHOSPHORUS	MG/L	2	1.07	0.27	0.22	0.33	0.26	0.22	0.08	0.94	0.39
	ELECTRICAL CONDUCTIVITY	UMHOS/CM		286	270	215	186	187	185	258	319	279
	LABORATORY PH	UNITS	6-9				7.52	6.9	7.2			
	NITRATE NITROGEN as N	MG/L	10	1.1	0.98	0.44	3.22	1.04	3.1	0.8	2.1	0.8
	NITRITE NITROGEN as N	MG/L	1	0.1	0.1	0.1	0.1	<0.05	<0.05	0.2	0.2	0.1
	OIL AND GREASE	MG/L	15	1.29	1.56	0.95	1.92	2.04	1.48	12	4	1
	TOTAL DISSOLVED SOLIDS	MG/L		249	125	222	120	111	140	191	236	173
	TOTAL HARDNESS	MG/L		77	42.5	90.8	40.9	35.1	45.5	85	78	59
	TOTAL KJELDAHL NITROGEN	MG/L	1.5	0.44	1.25	**3.61**	**2.98**	**3.1**	**2.36**	**2.37**	**5.9**	0.97
	TOTAL PHOSPHORUS	MG/L	2	1.28	0.3	0.17	0.46	0.33	0.6	0.12	0.96	0.49
	TOTAL SUSPENDED SOLIDS	MG/L	100	7.58	**280**	**159**	**457**	62	**200**	67	**294**	**139**
	TURBIDITY	NTU		69	38	21	50	27	38	72.2	200	96
	pH	pH Units	6-9	6.67	6.65	6.25	7.9	8.6	8.3	7.8	7.6	7.5
Bacteriological												
	ENTEROCOCCI	MPN/100ML								130000	26000	80000
	FECAL COLIFORM	MPN/100ML	200	**>1600**	**>1600**	**>1600**	<2	**>1600**	**>1600**	**70000**	**27000**	**14000**
	FECAL STREPTOCOCCI	MPN/100ML		30	>1600	240	<2	>1600	>1600	130000	26000	80000
	TOTAL COLIFORM	MPN/100ML	1,000	**>241900**	**298700**	**>2419000**	500	**>1600**	**>1600**	**1100000**	**500000**	**30000**
Pesticides/PCBs												
	CHLORPYRIFOS	UG/L		0.1		<0.5	<0.5	<0.5	<0.5	<0.05	<0.5	<0.5
	DIAZINON	UG/L		0.46	0.46	0.53	<0.5	<0.5	<0.5	0.75	<0.5	<0.5
	MALATHION	UG/L								0.22	0.25	<0.5
Other Organics												
	SURFACTANTS (MBAS)	MG/L		0.48	0.19	0.07	0.35	0.22	0.13	0.7	<0.5	<0.5
Total Metals												
	ANTIMONY	MG/L	0.636	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	0.003	0.003	0.002
	ARSENIC	MG/L	0.34	0.006	0.0018	0.003	<0.001	0.007	0.005	0.004	0.006	0.004
	CADMIUM	MG/L	0.0046	0.002	<0.00025	<0.00025	<0.00025	0.002	<0.00025	<0.001	<0.001	<0.001
	CHROMIUM	MG/L	0.02	<0.005	0.015	**0.035**	<0.005	<0.005	<0.005	0.007	0.013	0.007
	COPPER	MG/L	0.0135	0.006	<0.005	**0.016**	**0.029**	**0.016**	**0.014**	**0.027**	**0.049**	**0.016**
	LEAD	MG/L	0.082	<0.001	0.007	0.082	0.015	<0.001	<0.005	0.022	0.055	0.027
	NICKEL	MG/L	0.47	0.04	0.028	0.016	<0.005	<0.005	<0.005	0.012	0.014	0.005
	SELENIUM	MG/L	0.02	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	0.003	<0.002
	ZINC	MG/L	0.122	0.03	0.048	**0.21**	0.096	0.05	0.08	**0.15**	**0.29**	0.12
Dissolved Metals												
	ANTIMONY	MG/L	(b)				<0.0015	<0.0015	<0.0015	0.004	<0.002	<0.002
	ARSENIC	MG/L	(b)				<0.001	0.005	<0.001	0.003	0.002	0.003
	CADMIUM	MG/L	(b)				<0.00025	<0.00025	<0.00025	<0.001	<0.001	<0.001
	CHROMIUM	MG/L	(b)				<0.005	<0.005	<0.005	0.005	<0.005	<0.005
	COPPER	MG/L	(b)				<0.005	<0.005	<0.005	0.017	0.013	<0.005
	LEAD	MG/L	(b)				<0.001	<0.001	<0.005	0.003	0.002	**0.014**
	NICKEL	MG/L	(b)				<0.005	<0.005	<0.005	0.011	0.007	0.002
	SELENIUM	MG/L	(b)				<0.001	<0.001	<0.001	<0.002	<0.002	<0.002
	ZINC	MG/L	(b)				0.019	0.028	0.008	0.09	0.11	0.03

(a) Water Quality Objective for unionized ammonia is .025mg/L. Insufficient information is available to calculate unionized ammonia at this time.

(b) Water Quality Objectives for dissolved metal fractions are based on total hardness and are calculated as described by the EPA Federal Register Doc. 40 CFR Part 131, May 18, 2000.

Red values indicate concentrations that exceed Water Quality Objective for chronic toxicity.

Bold black values indicate concentrations that exceed Water Quality Objective for chronic and acute toxicity.

Blue values indicate detectable concentrations in exceedance of the Water Quality Objective.

Orange values indicate non-detectable concentrations where the detection limit exceeds the Water Quality Objective.

Station: Crosby

Parameter		Units	WQO	Storm Season (October - April)											
				1994-95				1995-96			1996-97		1997-98		
				25 December	11 January	14 February	16 April	22 January	31 January	22 February	30 October	21 November	10 November	26 November	3 February
Water Quality															
	AMMONIA AS NITROGEN	MG/L	0.025(a)	0.2	0.4	0.6	2	0.52	0.43	0.53	0.59	0.26	1.5	1.04	<0.5
	BOD	MG/L	30	9.5	24	21	18.3	11.6	7.6	22.8	12.6	7.9	73	24	8
	CHEMICAL OXYGEN DEMAND	MG/L	120	220	42	112	212	165	104	283	48	8	190	87	29
	DISSOLVED PHOSPHORUS	MG/L	2	<0.05	0.6	0.4	0.3	1.6	0.7		0.4	<0.2	0.8	0.19	0.18
	ELECTRICAL CONDUCTIVITY	UMHOS/CM		414	112	65	166	113	458	366	136	422			79
	NITRATE NITROGEN as N	MG/L	10	0.7	0.6	1.1	1.3	1.2	1.1	1.8	1.1	0.86	3.8	0.5	0.5
	NITRITE NITROGEN as N	MG/L	1	<0.05	<0.05	<0.05	<0.05							0.05	<0.05
	OIL AND GREASE	MG/L	15	1.3	1.6	3.9	2.1	2.0	12.4	14.0	4.8	18.4			<0.5
	TEMPERATURE	C						10	16	17	18	20			
	TOTAL DISSOLVED SOLIDS	MG/L		570	170	300	280	112	78	120	100	24	317	155	100
	TOTAL HARDNESS	MG/L		180	40	39	56	25	27.2	35.5	22.7	22.1	66.7	39	16.1
	TOTAL KJELDAHL NITROGEN	MG/L	1.5	2.4	2.3	<1	6.9	3.8	1.2	3.1	2.4	0.95	3.6	2.4	2.7
	TOTAL PHOSPHORUS	MG/L	2	<0.05	0.6	0.8	0.8	0.6	0.5	0.7	0.5	0.4	1.5	0.3	0.37
	TOTAL SUSPENDED SOLIDS	MG/L	100	2000	580	310	320	260	148	132	128	28	260	945	142
	TURBIDITY	NTU		35	97	184	90	52.8	16.9	41.3	40	29	95	20.2	77
	pH	pH Units	6-9	7.3	7.4	7.37	7.7	6.4	7.6	7.9	4	7.1			7.5
Bacteriological															
	FECAL COLIFORM	MPN/100ML	200	50000	30000	22000	9000	16000	3000	16000	50000	>24000			8850
	FECAL STREPTOCOCCI	MPN/100ML		>160000	25000	>160000	160000	>16000	<200	>16000	90000	>24000			130
	TOTAL COLIFORM	MPN/100ML	1,000	>160000	>160000	>160000	17000		7000	>16000	160000	>24000			>20000
Semi-Volatiles															
	1,2,4-TRICHLOROBENZENE	UG/L	250	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<1.9	<1.9
	1,2-DICHLOROBENZENE	UG/L	17,000	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<1.9	<1.9
	1,2-DIPHENYLHYDRAZINE	UG/L	0.54	<10		<10	<10	<25	<29	<25	<25	<25			
	1,3-DICHLOROBENZENE	UG/L	2,600	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<1.9	<1.9
	1,4-DICHLOROBENZENE	UG/L	2,600	<4.4		<4.4	<4.4	<10	<12	<10	<10	<10		<4.4	<4.4
	2,4,6-TRICHLOROPHENOL	UG/L	6.5	<2.7		<2.7	<2.7	<10	<12	<10	<10	<10		<2.7	<2.7
	2,4-DICHLOROPHENOL	UG/L	790	<2.7		<2.7	<2.7	<10	<12	<10	<10	<10		<2.7	<2.7
	2,4-DIMETHYLPHENOL	UG/L	2,300	<2.7		<2.7	<2.7	<10	<12	<10	<10	<10		<2.7	<2.7
	2,4-DINITROPHENOL	UG/L	14,000	<42		<42	<42	<50	<58	<50	<50	<50		<42	<42
	2,4-DINITROTOLUENE	UG/L	9.1	<5.7		<5.7	<5.7	<10	<12	<10	<10	<10		<5.7	<5.7
	2,6-DINITROTOLUENE	UG/L	330	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<1.9	<1.9
	2-CHLORONAPHTHALENE	UG/L	4,300	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<1.9	<1.9
	2-CHLOROPHENOL	UG/L	400	<3.3		<3.3	<3.3	<10	<12	<10	<10	<10		<3.3	<3.3
	2-NITROPHENOL	UG/L	230	<3.6		<3.6	<3.6	<10	<12	<10	<10	<10		<3.6	<3.6
	3,3'-DICHLOROBENZIDINE	UG/L	0.077	<16.5		<16.5	<16.5	<20	23	<20	<20	<20		<16.5	<16.5
	4-BROMOPHENYL-PHENYLETHER	UG/L	360	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<1.9	<1.9
	4-CHLOROPHENYL-PHENYLETHER	UG/L	1.8	<4.2		<4.2	<4.2	<10	<12	<10	<10	<10		<177	<177
	4-NITROPHENOL	UG/L	230	<2.4		<2.4	<2.4	<50	<58	<50	<50	<50		<2.4	<2.4
	ACENAPHTHENE	UG/L	2,700	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<3.5	<3.5
	ACENAPHTHYLENE	UG/L	300	<3.5		<3.5	<3.5	<10	<12	<10	<10	<10		<3.5	<3.5
	ANTHRACENE	UG/L	110,000	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<1.9	<1.9
	BENZO(a)ANTHRACENE	UG/L		<7.8		<7.8	<7.8	<10	<12	<10	<10	<10		<7.8	<7.8
	BENZO(a)PYRENE	UG/L	0.049	<2.5		<2.5	<2.5	<10	<12	<10	<10	<10		<2.5	<2.5
	BENZO(b)FLUORANTHENE	UG/L	0.049	<4.8		<4.8	<4.8	<10	<12	<10	<10	<10		<14.8	<14.8
	BENZO(g,h,i)PERYLENE	UG/L	0.0088	<4.1		<4.1	<4.1	<10	<12	<10	<10	<10		<14.1	<14.1
	BENZO(k)FLUORANTHENE	UG/L	0.049	<2.5		<2.5	<2.5	<10	<12	<10	<10	<10		<2.5	<2.5
	BIS(2-CHLOROETHOXY)METHANE	UG/L	4.4	<5.3		<5.3	<5.3	<10	<12	<10	<10	<10		<5.3	<5.3
	BIS(2-CHLOROETHYL)ETHER	UG/L	1.4	<5.7		<5.7	<5.7	<10	<12	<10	<10	<10		<5.7	<5.7

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Station: Crosby

Parameter		Units	WQO	Storm Season (October - April) 1994-95 25 December	11 January	14 February	16 April	1995-96 22 January	31 January	22 February	1996-97 30 October	21 November	1997-98 10 November	26 November	3 February
Semi-Volatiles															
	BIS(2-CHLOROISOPROPYL)ETHER	UG/L	170,000	<5.7		<5.7	<5.7	<15	<17	<15	<15	<15		<5.7	<5.7
	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	5.9	6.21		6.21	<2.5	31	16	28	58	58		13.1	37.2
	BUTYL BENZYL PHTHALATE	UG/L	3,000	<2.5		<2.5	<2.5	<10	<12	<10	<10	<10		19	2.94
	CHRYSENE	UG/L	0.049	<2.5		<2.5	<2.5	<10	<12	<10	<10	<10		<2.5	<2.5
	DI-N-BUTYL PHTHALATE	UG/L	12,000	<2.5		<2.5	<2.5	<10	<12	<10	<10	<10		36.4	83.3
	DI-N-OCTYL PHTHALATE	UG/L	940	<2.5		<2.5	<2.5	<10	<12	<10	<10	<10		<2.5	<2.5
	DIBENZ(a,h)ANTHRACENE	UG/L	0.049					<10	<12	<10	<10	<10		<12.5	<12.5
	DIETHYL PHTHALATE	UG/L	120,000	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<1.9	<1.9
	DIMETHYL PHTHALATE	UG/L	1,000	<1.6		<1.6	<1.6	<10	<12	<10	<10	<10		<1.6	<1.6
	FLUORANTHENE	UG/L	42	<2.2		<2.2	<2.2	<10	<12	<10	<10	<10		<2.2	<2.2
	FLUORENE	UG/L	14,000	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<1.9	<1.9
	HEXACHLOROBENZENE	UG/L	0.00077	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<1.9	<1.9
	HEXACHLOROBUTADIENE	UG/L	50	<0.9		<0.9	<0.9	<10	<12	<10	<10	<10		<0.9	<0.9
	HEXACHLOROCYCLOPENTADIENE	UG/L	17,000	<10		<10	<10	<10	<12	<10	<10	<10		<10	<10
	HEXACHLOROETHANE	UG/L	8.9	<1.6		<1.6	<1.6	<10	<12	<10	<10	<10		<1.6	<1.6
	INDENO(1,2,3-cd)PYRENE	UG/L	0.049	<3.7		<3.7	<3.7	<10	<12	<10	<10	<10		<3.7	<3.7
	ISOPHORONE	UG/L	600	<2.2		<2.2	<2.2	<10	<12	<10	<10	<10		<2.2	<2.2
	N-NITROSODI-N-PROPYLAMINE	UG/L	1.4	<10		<10	<10	<15	<12	<15	<15	<15		<10	<10
	N-NITROSODIMETHYLAMINE	UG/L	8.1	<10		<10	<10	<15	<12	<15	<15	<15		<10	<10
	N-NITROSODIPHENYLAMINE	UG/L	16	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<1.9	<1.9
	NAPHTHALENE	UG/L	2,300	<1.6		<1.6	<1.6	<10	<12	<10	<10	<10		<1.6	<1.6
	NITROBENZENE	UG/L	1,900	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<1.9	<1.9
	PENTACHLOROPHENOL	UG/L	19	<3.6		<3.6	<3.6	<50	<58	<50	<50	<50		<173.6	<173.6
	PHENANTHRENE	UG/L	0.0088	<5.4		<5.4	<5.4	<10	<12	<10	<10	<10		<5.4	<5.4
	PHENOL	UG/L	4,600,000	<1.5		<1.5	<1.5	<10	<12	<10	<10	<10		<1.5	<1.5
	PYRENE	UG/L	10	<1.9		<1.9	<1.9	<10	<12	<10	<10	<10		<1.9	<1.9
	SURFACTANTS (MBAS)	MG/L		1.12	<0.05	0.05	0.16	<0.1	<0.1	0.66	0.23	<0.1	0.29	0.28	0.09
Other Organics															
	TOTAL PETROLEUM HYDROCARBONS (TPH)	MG/L	0.092	<0.5		<0.5	0.73	0.7	<0.5	2.6	1.5	<0.5	5.6	<0.5	<0.5
	TOTAL PHENOLS	MG/L	4,600	<0.006		<0.006	0.025								
Total Metals															
	ANTIMONY	MG/L	0.636	<0.001	<0.001	<0.001	<0.001	<0.0015	<0.0015	0.003			<0.0015	<32	<32
	ARSENIC	MG/L	0.34	0.011	0.006	0.007	0.0053	0.002	0.002	0.002			0.005	<0.053	<0.053
	BERYLLIUM	MG/L	0.13	0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002			<0.002	<0.0003	<0.0003
	CADMIUM	MG/L	0.0046	0.0014	0.0009	0.001	0.002	0.00036	<0.00025	<0.00025	<0.0005	0.0007	0.0007	<0.004	<0.004
	CHROMIUM	MG/L	0.02	0.0041	0.0078	0.016	0.012	<0.005	<0.005	0.006			<0.005	0.012	<0.007
	COPPER	MG/L	0.0135	0.036	0.032	0.046	0.1	0.028	0.026	0.032			0.096	0.128	0.037
	LEAD	MG/L	0.082	0.058	0.049	0.071	0.092	0.003	0.004	0.003			0.005	<0.042	<0.042
	NICKEL	MG/L	0.47	0.013	0.0064	0.006	0.011	0.009	0.006	0.01			0.016	0.024	<0.015
	SELENIUM	MG/L	0.02	0.0008	<0.0005	<0.0005	<0.0005	<0.001	<0.001	0.002			<0.001	<0.075	<0.075
	THALLIUM	MG/L	0.0063	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001			<0.002	<0.04	<0.04
	ZINC	MG/L	0.122	0.29	0.27	0.25	0.7	0.165	0.172	0.221			0.606	0.876	0.19
Dissolved Metals															
	COPPER	MG/L	(b)								0.03	0.01			
	LEAD	MG/L	(b)								<0.002	0.004			
	ZINC	MG/L	(b)								0.24	0.12			

(a) Water Quality Objective for unionized ammonia is .025mg/L. Insufficient information is available to calculate unionized ammonia at this time.

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Red values indicate concentrations that exceed Water Quality Objective for chronic toxicity.

Bold black values indicate concentrations that exceed Water Quality Objective for chronic and acute toxicity.

Blue values indicate detectable concentrations in exceedance of the Water Quality Objective.

Orange values indicate non-detectable concentrations where the detection limit exceeds the Water Quality Objective.

Station: Landis

Parameter		Units	WQO	Storm Season (October - April) 1994-95 10 January	1994-95 14 February	1995-96 1 November	1995-96 22 January	1995-96 5 March
Water Quality								
	AMMONIA AS NITROGEN	MG/L	0.025(a)		0.3	0.92	0.42	0.34
	BOD	MG/L	30		16.5	26.9	5.5	8.2
	CHEMICAL OXYGEN DEMAND	MG/L	120		44	236	123	94
	DISSOLVED PHOSPHORUS	MG/L	2		0.6	0.8	0.7	
	ELECTRICAL CONDUCTIVITY	UMHOS/CM		80.6	40	423	219	300
	NITRATE NITROGEN as N	MG/L	10		1.1	2.6	0.8	0.8
	OIL AND GREASE	MG/L	15		2.5	19.1	14.0	3.2
	TEMPERATURE	C				13	11	17
	TOTAL DISSOLVED SOLIDS	MG/L		64	36	240	100	134
	TOTAL HARDNESS	MG/L		28	23	66.9	24.5	43.7
	TOTAL KJELDAHL NITROGEN	MG/L	1.5		<1	5.2	2.3	1.8
	TOTAL PHOSPHORUS	MG/L	2		1.4	1	0.4	0.6
	TOTAL SUSPENDED SOLIDS	MG/L	100	170	200	145	60	28
	TURBIDITY	NTU			23	98	15	17.2
	pH	pH Units	6-9	7.2	8.4		7.7	7.3
Bacteriological								
	FECAL COLIFORM	MPN/100ML	200		90000	>16000	>16000	>16000
	FECAL STREPTOCOCCI	MPN/100ML			>160000	>16000	>16000	>16000
	TOTAL COLIFORM	MPN/100ML	1,000		90000	>16000		>16000
Pesticides/PCBs								
	AROCLOR-1016	UG/L	0.127		<10	<0.5	<0.5	1
	AROCLOR-1221	UG/L	100		<30	<0.5	<0.5	2
	AROCLOR-1232	UG/L	0.318		<10	<0.5	<0.5	1
	AROCLOR-1242	UG/L	0.2		<10	<0.5	<0.5	1
	AROCLOR-1248	UG/L	2.54		<10	<0.5	<0.5	1
	AROCLOR-1254	UG/L	100		<36	<0.5	<0.5	1
	AROCLOR-1260	UG/L	0.477		<10	<0.5	<0.5	1
	CHLORDANE	UG/L	2.4		<10	<0.5	<0.5	1
	TOXAPHENE	UG/L	0.73		<10	<1	<1	5
Semi-Volatiles								
	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	5.9		12.1	23	36	16
Other Organics								
	SURFACTANTS (MBAS)	MG/L			0.25	<0.1	0.45	0.47
	TOTAL PETROLEUM HYDROCARBONS (TPH)	MG/L	0.092		<0.5	5.7	1.3	2.1
TOTAL METALS	ARSENIC	MG/L	0.34	0.0052	<0.005	0.004	<0.001	0.003
	CADMIUM	MG/L	0.0046	0.0012	0.0011	0.0015	<0.00025	0.00047
	CHROMIUM	MG/L	0.02	0.0026	0.0055	0.009	<0.005	<0.005
	COPPER	MG/L	0.0135	0.014	0.02	0.061	0.014	0.022
	LEAD	MG/L	0.082	0.051	0.063	0.0446	0.002	0.009
	NICKEL	MG/L	0.47	<0.005	<0.005	0.019	0.007	0.009
	SELENIUM	MG/L	0.02	<0.0005	0.0005	0.0023	<0.001	<0.001
	THALLIUM	MG/L	0.0063	<0.001	<0.001	0.002	<0.001	<0.001
	ZINC	MG/L	0.122	0.077	0.19	0.025	0.081	0.124

(a) Water Quality Objective for unionized ammonia is .025mg/L. Insufficient information is available to calculate unionized ammonia at this time.

(b) Water Quality Objectives for dissolved metal fractions are based on total hardness and are calculated as described by the EPA Federal Register Doc. 40 CFR Part 131, May 18, 2000.

Red values indicate concentrations that exceed Water Quality Objective for chronic toxicity.

Bold black values indicate concentrations that exceed Water Quality Objective for chronic and acute toxicity.

Blue values indicate detectable concentrations in exceedance of the Water Quality Objective.

Orange values indicate non-detectable concentrations where the detection limit exceeds the Water Quality Objective.

Station: Proctor

Parameter				Storm Season (October - April) 1993-94		
				24 March	24 April	27 April
Water Quality		Units	WQO			
	SETTLEABLE SOLIDS	ML/L			0.8	4
	TOTAL DISSOLVED SOLIDS	MG/L		37	270	790
	TOTAL SUSPENDED SOLIDS	MG/L	100	<4	500	240
	TURBIDITY	NTU			94	19
	pH	pH Units	6-9	7.8	7	8.2

Blue values indicate detectable concentrations in exceedance of the Water Quality Objective.

Station: Switzer

Parameter		Units	WQO	Storm Season (October - April) 1993-94 19 March	1993-94 24 March	1993-94 26 March	1995-96 1 November	1995-96 31 January	1995-96 13 March
Water Quality									
	AMMONIA AS NITROGEN	MG/L	0.025(a)	0.3	0.3	0.7	0.49	0.29	0.39
	BOD	MG/L	30.0	<3	40.5	37	17.7	5.1	9.2
	CHEMICAL OXYGEN DEMAND	MG/L	120.0	45	46	120	131	49	86
	DISSOLVED PHOSPHORUS	MG/L	2.0	0.2	0.19	0.3		0.5	
	ELECTRICAL CONDUCTIVITY	UMHOS/CM						20800	3290
	NITRATE NITROGEN as N	MG/L	10.0	0.41	0.43	0.75	1.8	1.2	0.72
	OIL AND GREASE	MG/L	15	2.2	1.3	2.3	15.2	2.8	6.3
	TEMPERATURE	C					17	16	20
	TOTAL DISSOLVED SOLIDS	MG/L		240	330	1100	874	110	1580
	TOTAL HARDNESS	MG/L		55	63	220	188	36.9	297
	TOTAL KJELDAHL NITROGEN	MG/L	1.5	2.2	2.1	4.2	3.8	1.3	1.6
	TOTAL PHOSPHORUS	MG/L	2	0.2	0.38	0.6	0.7	0.4	0.3
	TOTAL SUSPENDED SOLIDS	MG/L	100	97	98	58	100	78	74
	TURBIDITY	NTU		20	37	23.2	77.5	15.4	40.4
	pH	pH Units	6-9	8.3	8.1	8.3		6.9	7.4
Bacteriological									
	FECAL COLIFORM	MPN/100ML	200	24000	24000	93000	>16000	90000	>16000
	FECAL STREPTOCOCCI	MPN/100ML		4300	110000	>110000	>16000	16000	>16000
	TOTAL COLIFORM	MPN/100ML	1,000	24000	240000	110000	>16000	>160000	>16000
Pesticides/PCBs									
	AROCLOR-1016	UG/L	0.127	<10	<10	<10	<0.5	<0.5	<1
	AROCLOR-1221	UG/L	100	<10	<10	<10	<0.5	<0.5	<2
	AROCLOR-1232	UG/L	0.318	<30	<30	<30	<0.5	<0.5	<1
	AROCLOR-1242	UG/L	0.2	<10	<10	<10	<0.5	<0.5	<1
	AROCLOR-1248	UG/L	2.54	<10	<10	<10	<0.5	<0.5	<1
	AROCLOR-1254	UG/L	100	<36	<36	<36	<0.5	<0.5	<1
	AROCLOR-1260	UG/L	0.477	<10	<10	<10	<0.5	<0.5	<1
	CHLORDANE	UG/L	2.4	<10	<10	<10	<0.5	<0.5	<1
	TOXAPHENE	UG/L	0.73	<1	<1	<1	<1	<1	<5
Semi-Volatiles									
	BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	5.9	6.45	72.1	16.44	<30	<10	<10
	DI-N-BUTYL PHTHALATE	UG/L	12,000	3.53	15.6	6.48	<10	<10	<10
Other Organics									
	SURFACTANTS (MBAS)	MG/L		0.25	0.25	0.7	0.19	<0.1	0.17
	TOTAL PETROLEUM HYDROCARBONS (TPH)	MG/L	0.092					<0.5	1.1
	TOTAL PHENOLS	MG/L	4,600	<0.005	<0.005	0.023			
Total Metals									
	ANTIMONY	MG/L	0.636	<0.001	<0.001	0.0013	<0.0015		
	ARSENIC	MG/L	0.34	<0.005	<0.005	<0.005	0.004		
	CADMIUM	MG/L	0.0046	0.0005	0.0005	0.0009	0.0008		
	CHROMIUM	MG/L	0.02	0.0043	0.0036	0.0052	<0.005		
	COPPER	MG/L	0.0135	0.017	0.015	0.033	0.039		
	LEAD	MG/L	0.082	0.026	0.029	0.031	0.0346		
	NICKEL	MG/L	0.47	<0.005	<0.005	0.0081	0.0346		
	SELENIUM	MG/L	0.02	<0.0005	<0.0005	<0.0005	0.012		
	THALLIUM	MG/L	0.0063	<0.001	<0.001	<0.001	0.002		
	ZINC	MG/L	0.122	0.14	0.12	0.22	0.253		
Dissolved Metals									
	ANTIMONY	MG/L	(b)					<0.0015	0.003
	ARSENIC	MG/L	(b)					0.003	<0.001
	CADMIUM	MG/L	(b)					<0.00025	0.0004
	COPPER	MG/L	(b)					**0.008**	0.012
	LEAD	MG/L	(b)					0.003	0.002
	NICKEL	MG/L	(b)					0.006	<0.005
	SELENIUM	MG/L	(b)					<0.001	0.002
	THALLIUM	MG/L	(b)					0.002	0.005
	ZINC	MG/L	(b)					**0.062**	0.088

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Red values indicate concentrations that exceed Water Quality Objective for chronic toxicity.

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Blue values indicate detectable concentrations in exceedance of the Water Quality Objective.

Orange values indicate non-detectable concentrations where the detection limit exceeds the Water Quality Objective.

Appendix B: Maps

Appendix B provides accurate maps of the watershed that identify: all receiving waters (including the Pacific Ocean), Clean Water Act Section 303(d) impaired receiving waters (including the Pacific Ocean), land uses, MS4s, major highways, jurisdictional boundaries, and inventoried commercial, construction, industrial, municipal sites, and residential areas.

The watercourse, water body, and water-related features throughout the San Diego Bay watershed are shown on Plate 1. The remaining map features required by the Municipal Permit (namely: the major highways, the jurisdictional boundaries, and the inventories) are presented on Plate 2.

Plate 1

San Diego Bay Watershed - Water Features

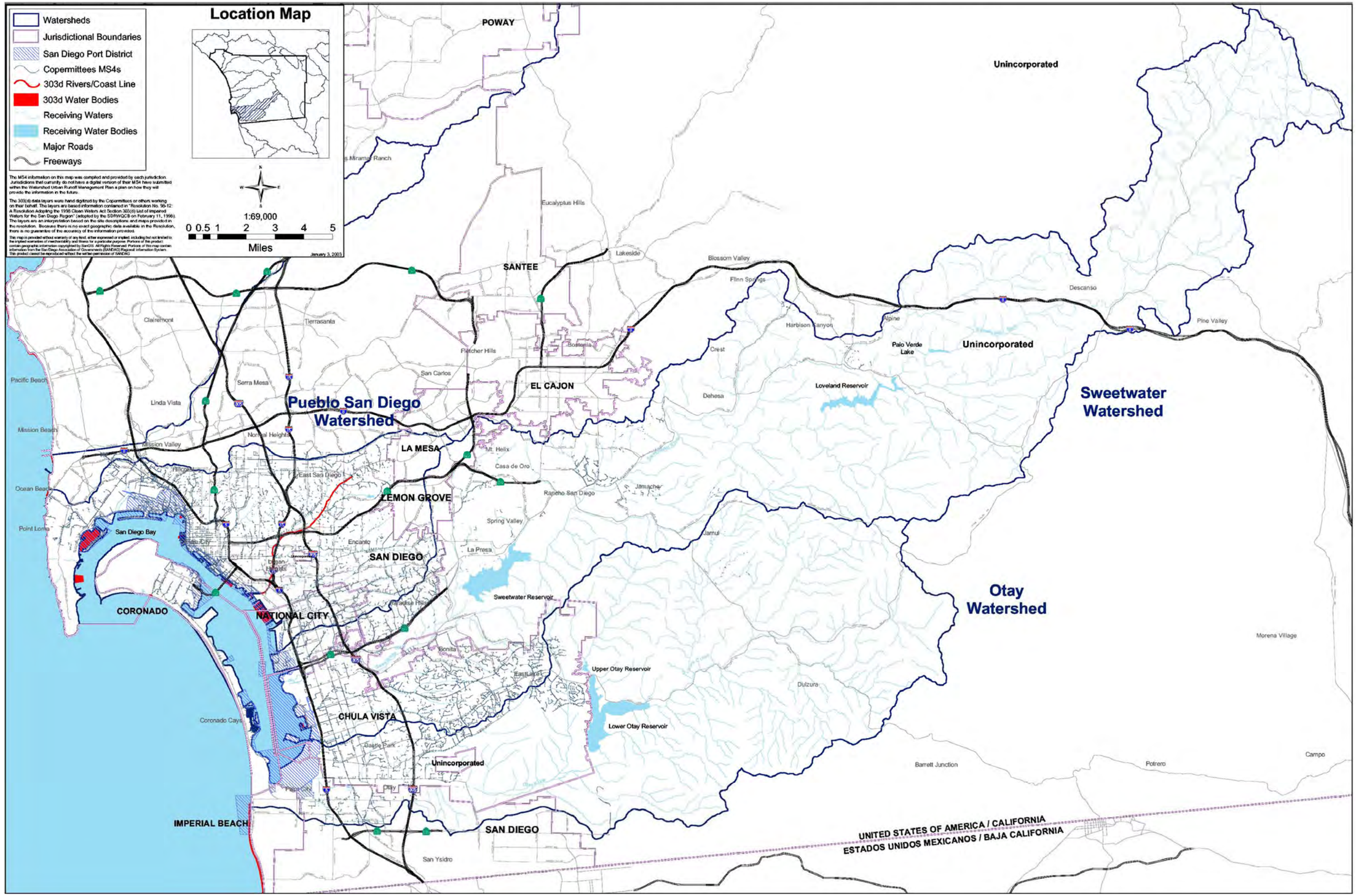
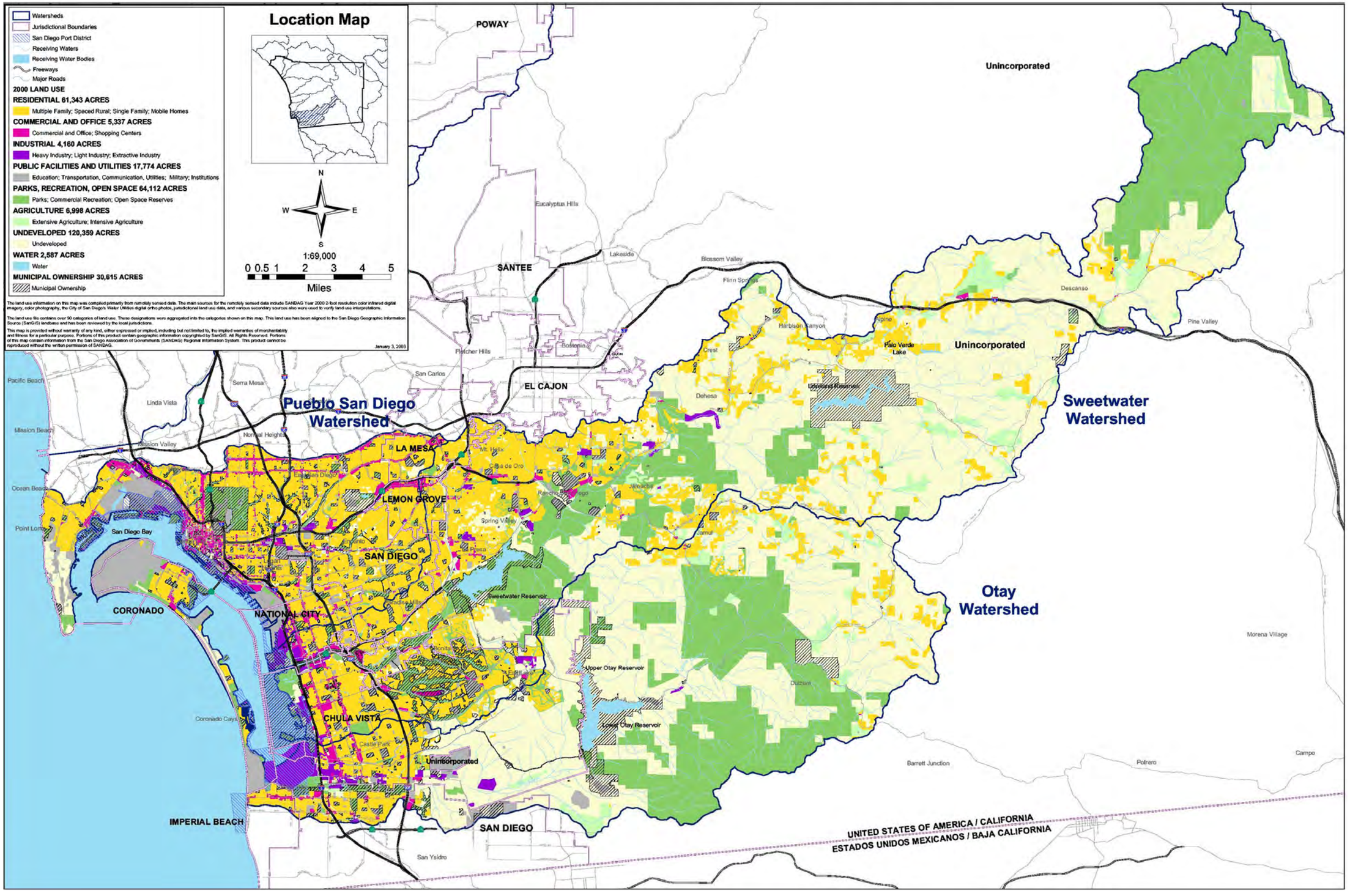


Plate 2

San Diego Bay Watershed - Land Use



Appendix C: Glossary

Appendix C provides general terms pertinent to the management of urban runoff. These terms were taken directly from the Municipal Permit.

Beneficial Uses - The uses of water necessary for the survival or well being of man, plants, and wildlife. These uses of water serve to promote the tangible and intangible economic, social, and environmental goals "Beneficial Uses" of the waters of the State that may be protected against include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. Existing beneficial uses are uses that were attained in the surface or ground water on or after November 28, 1975; and potential beneficial uses are uses that would probably develop in future years through the implementation of various control measures. "Beneficial Uses" are equivalent to "Designated Uses" under federal law. [California Water Code Section 13050(f)].

Best Available Technology (BAT) – BAT is the acronym for best available technology economically achievable. BAT is the technology-based standard established by congress in CWA section 402(p)(3)(A) for industrial dischargers of storm water. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of treatment and best management practices, or BMPs. For example, secondary treatment (or the removal of 85% suspended solids and BOD) is the BAT for suspended solid and BOD removal from a sewage treatment plant. BAT generally emphasizes treatment methods first and pollution prevention and source control BMPs secondarily.

The best economically achievable technology that will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants, as determined in accordance with regulations issued by the Environmental Protection Agency Administrator. Factors relating to the assessment of best available technology shall take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the permitting authority deems appropriate.

Best Conventional Technology (BCT) – BCT is an acronym for Best Conventional Technology. BCT is the treatment techniques, processes and procedure innovations,

operating methods that eliminate amounts of chemical, physical, and biological characteristics of pollutant constituents to the degree of reduction attainable through the application of the best management practices to the maximum extent practicable.

Best Management Practices - Best Management Practices (BMPs) are defined in 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In the case of municipal storm water permits, BMPs are typically used in place of numeric effluent limits.

Bioaccumulate - The progressive accumulation of contaminants in the tissues of organisms through any route including respiration, ingestion, or direct contact with contaminated water, sediment, pore water, or dredged material to a higher concentration than in the surrounding environment. Bioaccumulation occurs with exposure and is independent of the tropic level.

Bioassessment - The use of biological community information to evaluate the biological integrity of a water body and its watershed. With respect to aquatic ecosystems, bioassessment is the collection and analysis of samples of the benthic macroinvertebrate community together with physical/habitat quality measurements associated with the sampling site and the watershed to evaluate the biological condition (i.e. biological integrity) of a water body.

Bioconcentration – A process by which there is a net accumulation of a chemical directly from water into aquatic organisms resulting from simultaneous uptake and elimination by gill or epithelial tissue. Bioconcentration differs from bioaccumulation in that bioaccumulation refers to the progressive concentration of contaminants in the tissues of organisms through multiple pathways.

Biocriteria - Under the Clean Water Act, numerical values or narrative expressions that define a desired biological condition for a water body that are legally enforceable. The U.S. EPA defines biocriteria as: “numerical values or narrative expressions that describe the reference biological integrity of aquatic communities inhabiting waters of a given designated aquatic life use…(that)…describe the characteristics of water body segments least impaired by human activities.”

Biological Integrity - Defined in Karr J.R. and D.R. Dudley. 1981. Ecological perspective on water quality goals. Environmental Management 5:55-68 as: “A balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional

organization comparable to that of natural habitat of the region." Also referred to as ecosystem health.

Biomagnication – The transfer and progressive increase in tissue concentrations of a contaminant along the food chain. Because some pollutants can be transferred to higher trophic levels, carnivores at the top of the food chain, such as predatory fish, birds, and mammals (including humans), obtain most of their pollution burden from aquatic ecosystems by ingestion. Thus, although such pollutants may only be present in receiving waters in low concentrations, they can have a significant impact to the integrity of the ecosystem through biomagnification.

Clean Water Act Section 402(p) - [33 USC 1342(p)] is the federal statute requiring municipal and industrial dischargers to obtain NPDES permits for their discharges of storm water.

Clean Water Act Section 303(d) Water Body - is an impaired water body in which water quality does not meet applicable water quality standards and/or is not expected to meet water quality standards, even after the application of technology based pollution controls required by the CWA. The discharge of urban runoff to these water bodies by the Copermittees is significant because these discharges can cause or contribute to violations of applicable water quality standards.

Contamination - As defined in the Porter-Cologne Water Quality Control Act, contamination is "an impairment of the quality of waters of the state by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. 'Contamination' includes any equivalent effect resulting from the disposal of waste whether or not waters of the state are affected."

Designated Waste - Designated waste is defined as a "nonhazardous waste which consists of pollutants which, under ambient environmental conditions at the waste management unit, could be released at concentrations in excess of applicable water quality objectives, or which could cause degradation of waters of the state." [CCR Title 27, Chapter 3, Subchapter 2, Article 2, Section 20210; WC Section 13173]

Effluent Limitations - Limitations on the volume of each waste discharge, and the quantity and concentrations of pollutants in the discharge. The limitations are designed to ensure that the discharge does not cause water quality objectives to be exceeded in the receiving water and does not adversely affect beneficial uses.

Effluent limitations are limitations of the quantity and concentrations of pollutants in a discharge. The limitations are designed to ensure that the discharge does not cause water quality objectives to be exceeded in the receiving water and does not adversely

affect beneficial uses. In other words, an effluent limit is the maximum concentration of a pollutant that a discharge can contain. To meet effluent limitations, the effluent typically must undergo one or more forms of treatment to remove pollutants in order to lower the pollutant concentration below the limit. Effluent limits are typically numeric (e.g., 10 mg/l), but can also be narrative (e.g., no toxics in toxic amounts).

Erosion – When land is diminished or warn away due to wind, water, or glacial ice. Often the eroded debris (silt or sediment) becomes a pollutant via storm water runoff. Erosion occurs naturally but can be intensified by land clearing activities such as farming, development, road building, and timber harvesting.

Grading - The cutting and/or filling of the land surface to a desired slope or elevation.

Hazardous Waste - Hazardous waste is defined as "any waste which, under Section 600 of Title 22 of this code, is required to be managed according to Chapter 30 of Division 4.5 of Title 22 of this code." [CCR Title 22, Division 4.5, Chapter 11, Article 1]

Illicit Discharge - Any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges form the municipal separate storm sewer) and discharges resulting from fire fighting activities.

Inert Waste - Inert waste is defined as one that "does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives, and does not contain significant quantities of decomposable waste." [CCR Title 27, Chapter 3, Subchapter 2, Article 2, Section 20230]

MEP – MEP is the acronym for Maximum Extent Practicable. MEP is the technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) that municipal dischargers of storm water (MS4s) must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of treatment and best management practices (BMPs). MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense). MEP considers economics and is generally, but not necessarily, less stringent than BAT. A definition for MEP is not provided either in the statute or in the regulations. Instead the definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their Urban Runoff Management Plan. Their total collective and individual activities conducted pursuant to the Urban Runoff Management Plan becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP

for municipal separate storm sewer system maintenance). In the absence of a proposal acceptable to the SDRWQCB, the SDRWQCB defines MEP.

In a memo dated February 11, 1993, entitled "Definition of Maximum Extent Practicable," Elizabeth Jennings, Senior Staff Counsel, SWRCB addressed the achievement of the MEP standard as follows:

> *"To achieve the MEP standard, municipalities must employ whatever Best Management Practices (BMPs) are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:*
>
> *a. Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?*
> *b. Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?*
> *c. Public Acceptance: Does the BMP have public support?*
> *d. Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?*
> *e. Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc?*
>
> *The final determination regarding whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the Regional or State Water Boards, and not by the municipal discharger. If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit derived, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP base solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a*

menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented."

Municipal Storm Water Conveyance System – (See Municipal Separate Storm Sewer System or MS4).

Municipal Separate Storm Sewer System (MS4) – MS4 is an acronym for Municipal Separate Storm Sewer System. A Municipal Separate Storm Sewer System is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, natural drainage features or channels, modified natural channels, man-made channels, or storm drains): (i) Owned or operated by a State, city town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designated or used for collecting of conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Historic and current development make use of natural drainage patterns and features as conveyances for urban runoff. Urban streams used in this manner are part of the municipalities MS4 regardless of whether they are natural, man-made, or partially modified features. In these cases, the urban stream is both an MS4 and a receiving water.

National Pollution Discharge Elimination System (NPDES) - These permits pertain to the discharge of waste to surface waters only. All State and Federal NPDES permits are also WDRs.

Non-hazardous Solid Waste - Non-hazardous solid waste means all putrescible and nonputrescible solid, semi-sold, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semi-sold wastes and other discarded solid or semi-solid waste; provided that such wastes do not contain wastes which must be managed as hazardous wastes, or wastes which contain soluble pollutants in concentration which exceed applicable water quality objectives or could cause degradation of wasters of the state." [CCR Title 27, Chapter 3, Subchapter 2, Article 2, Section 20220]

Non Point Source (NPS) – Non point source refers to diffuse, widespread sources of pollution. These sources may be large or small, but are generally numerous throughout a

watershed. Non Point Sources include but are not limited to urban, agricultural, or industrial areas, roads, highways, construction sites, communities served by septic systems, recreational boating activities, timber harvesting, mining, livestock grazing, as well as physical changes to stream channels, and habitat degradation. NPS pollution can occur year round any time rainfall, snowmelt, irrigation, or any other source of water runs over land or through the ground, picks up pollutants from these numerous, diffuse sources and deposits them into rivers, lakes, and coastal waters or introduces them into ground water.

Non-Storm Water - Non-storm water consists of all discharges to and from a storm water conveyance system that do not originate from precipitation events (i.e., all discharges from a conveyance system other than storm water). Non-storm water includes illicit discharges, non-prohibited discharges, and NPDES permitted discharges. An illicit discharge is defined at 40 CFR 122.26(b)(2) as any discharge to a municipal storm water conveyance system that is not composed entirely of storm water except discharges pursuant to a separate NPDES permit and discharges resulting from emergency fire fighting activities.

Nuisance - As defined in the Porter-Cologne Water Quality Control Act a nuisance is "anything which meets all of the following requirements: 1) Is injurious to health, or is indecent, or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. 2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. 3) Occurs during, or as a result of, the treatment or disposal of wastes."

Numeric effluent limitations - The typical method by which effluent limits are prescribed for pollutants in waste discharge requirements implementing the federal NPDES regulations. When numeric effluent limits are met at the "end-of-pipe", the effluent discharge generally will not cause water quality standards to be exceeded in the receiving waters (i.e., water quality standards will also be met).

Person - A person is defined as an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof. [40 CFR 122.2].

Point Source - Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operations, landfill leachate collection systems, vessel, or other floating craft from which pollutants are or may be discharged.

Pollution - As defined in the Porter-Cologne Water Quality Control Act, pollution is "the alteration of the quality of the waters of the State by waste, to a degree that unreasonably

affects the either of the following: A) The waters for beneficial uses; or 2) Facilities that serve these beneficial uses." Pollution may include contamination.

Pollutant - A pollutant is broadly defined as any agent that may cause or contribute to the degradation of water quality such that a condition of pollution or contamination is created or aggravated.

Pollution Prevention - Pollution prevention is defined as practices and processes that reduce or eliminate the generation of pollutants, in contrast to source control, treatment, or disposal.

Post-Construction BMPs - A subset of BMPs including structural and non-structural controls which detain, retain, filter, or educate to prevent the release of pollutants to surface waters during the final functional life of development.

Pre-Development Runoff Conditions - The runoff conditions that exist onsite immediately before the planned development activities occur. This definition is not intended to be interpreted as that period before any human-induces land activities occurred. This definition pertains to redevelopment as well as initial development.

Receiving Water Limitations - Waste discharge requirements issued by the SDRWQCB typically include both: (1) "Effluent Limitations" (or "Discharge Limitations") that specify the technology-based or water-quality-based effluent limitations; and (2) "Receiving Water Limitations" that specify the water quality objectives in the Basin Plan as well as any other limitations necessary to attain those objectives. In summary, the "Receiving Water Limitations" provision is the provision used to implement the requirement of CWA section 301(b)(1)(C) that NPDES permits must include any more stringent limitations necessary to meet water quality standards.

Sediment - Soil, sand, and minerals washed from land into water. Sediment resulting from anthropogenic sources (i.e. human induced land disturbance activities) is considered a pollutant. This Order regulates only the discharges of sediment from anthropogenic sources and does not regulate naturally occurring sources of sediment. Sediment can destroy fish-nesting areas, clog animal habitats, and cloud waters so that sunlight does not reach aquatic plants.

Storm Water - "Storm water" is as defined urban runoff and snowmelt runoff consisting only of those discharges which originate from precipitation events. Storm water is that portion of precipitation that flows across a surface to the storm drain system or receiving waters. Examples of this phenomenon include: the water that flows off a building's roof when it rains (runoff from an impervious surface); the water that flows into streams when snow on the ground begins to melt (runoff from a semi-pervious surface); and the water

that flows from a vegetated surface when rainfall is in excess of the rate at which it can infiltrate into the underlying soil (runoff from a pervious surface). When all factors are equal, runoff increases as the perviousness of a surface decreases. During precipitation events in urban areas, rain water picks up and transports pollutants through storm water conveyance systems, and ultimately to waters of the United States.

Toxicity - Adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). The water quality objectives for toxicity provided in the Water Quality Control Plan, San Diego Basin, Region 9, (Basin Plan), state in part…"All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life….The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge"…. Urban runoff discharges from MS4s are considered toxic when (1) the toxic effect observed in an acute toxicity test exceeds zero Toxic Units Acute (Tua=0); or (2) the toxic effect observed in a chronic toxicity test exceeds one Toxic Unit Chronic (Tuc=1). Urban runoff discharges from MS4s often contain pollutants that cause toxicity.

Total Maximum Daily Load (TMDL) - The TMDL is the maximum amount of a pollutant that can be discharged into a water body from all sources (point and non-point) and still maintain water quality standards. Under Clean Water Act section 303(d), TMDLs must be developed for all water bodies that do not meet water quality standards after application of technology-based controls.

Urban Runoff - Urban runoff is defined as all flows in a storm water conveyance system and consists of the following components: (1) storm water (wet weather flows) and (2) non-storm water illicit discharges (dry weather flows).

Waste - As defined in California Water Code Section 13050(d), "waste includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal."

Article 2 of CCR Title 23, Chapter 15 (Chapter 15) contains a waste classification system which applies to solid and semi-solid waste which cannot be discharged directly or indirectly to water of the state and which therefore must be discharged to land for treatment, storage, or disposal in accordance with Chapter 15. There are four classifications of waste (listed in order of highest to lowest threat to water quality): hazardous waste, designated waste, nonhazardous solid waste, and inert waste.

Water Quality Objective - Numerical or narrative limits on constituents or characteristics of water designated to protect designated beneficial uses of the water. [California Water Code Section 13050 (h)]. California's water quality objectives are established by the State and Regional Water Boards in the Water Quality Control Plans.

As stated in the Porter-Cologne Requirements for discharge (CWC 13263): "(Waste discharge) requirements shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of Section 13241."

A more comprehensive list of legal authority containing water quality objectives applicable to this Order can be found in Finding 37 and in Section VII Directives Discussion Underlying Broad Legal Authority for Order 2001-01 pp. 61-63.

Numeric or narrative limits for pollutants or characteristics of water designed to protect the beneficial uses of the water. In other words, a water quality objective is the maximum concentration of a pollutant that can exist in a receiving water and still generally ensure that the beneficial uses of the receiving water remain protected (i.e., not impaired). Since water quality objectives are designed specifically to protect the beneficial uses, when the objectives are violated the beneficial uses are, by definition, no longer protected and become impaired. This is a fundamental concept under the Porter Cologne Act. Equally fundamental is Porter Cologne's definition of pollution. A condition of pollution exists when the water quality needed to support designated beneficial uses has become unreasonably affected or impaired; in other words, when the water quality objectives have been violated. These underlying definitions (regarding beneficial use protection) are the reason why all waste discharge requirements implementing the federal NPDES regulations require compliance with water quality objectives. (Water quality objectives are also called water quality criteria in the Clean Water Act.)

Water Quality Standards - are defined as the beneficial uses (e.g., swimming, fishing, municipal drinking water supply, etc.,) of water and the water quality objectives necessary to protect those uses.

Waters of the State - Any water, surface or underground, including saline waters within the boundaries of the State [California Water Code Section 13050 (e)]. The definition of the Waters of the State is broader than that for the Waters of the United States in that all water in the State is considered to be a Waters of the State regardless of circumstances or condition. Under this definition, a Municipal Separate Storm Sewer System (MS4) is always considered to be a Waters of the State.

Waters of the United States - Waters of the United States can be broadly defined as navigable surface waters and all tributary surface waters to navigable surface waters. Groundwater is not considered to be a Waters of the United States. Under this definition (see below), a Municipal Separate Storm Sewer System (MS4) is always considered a Waters of the United States.

As defined in the 40 CFR 122.2, the Waters of the U.S. are defined as: **"(a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;** (b) All interstate waters, including interstate "wetlands;" (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purposes by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the United States under this definition: **(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;** (f) The territorial seas; and (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA."

Watershed - That geographical area which drains to a specified point on a water course, usually a confluence of streams or rivers (also known as drainage area, catchment, or river basin).